



# Richard Westra Dairy

## 2023 Annual Report

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

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

(See attached delivery confirmation)

# Annual Report

## Richard Westra Dairy 2023

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

Facility Information:

Name of Dairy	Richard Westra Dairy
Facility Address	4070 Avenue 256, Tulare CA 93274

Owner/Operator as of 12/31/2023

Operator Name	Richard Westra
Operator Phone	(559) 804-6868
Owner Name	Richard Westra
Owner Phone	(559) 804-6868

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).

**Richard Westra Dairy 2023**  
**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD**  
**CENTRAL VALLEY REGION**

10. Summary of storm water discharges from the production area

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

- 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).

**Richard Westra Dairy 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.

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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

Richard Westra

Print Name

Title and Date

DocuSigned by:



F7277BB019874D7  
Signature of Owner of Facility

Richard Westra

Print Name

6/27/2024

Title and Date



INNOVATIVE AG SERVICES

**Richard Westra Dairy 2023**  
**Estimated Manure and Nutrients Generated (Attachment A)**

Animal Type	Maximum No. of Head	Average No. of Head*	Housing Type	Weight	Total Manure Produced (tons/year)	NITROGEN	PHOSPHORUS	POTASSIUM	SALTS
						Net (LB) Available for Land Application			
Hol Milk Cows	2,230	2,174	Milk Freestall -	1,400	55,173.70	785,574.90	134,896.70	182,507.30	1,433,079.06
Hol Dry Cows	330	321	Flushed	1,450	4,684.07	58,582.50	8,201.55	38,664.45	82,671.62
Hol Heifers(15-24)	160	156	Flushed	1,000	1,628.41	21,637.20	3,416.40	10,249.20	40,176.86
Hol Calves (4-6)	980	955	Flushed	300	3,311.46	48,800.50	13,943.00	27,886.00	22,866.52
	<b>3,700</b>	<b>3,606</b>			<b>64,797.64</b>	<b>914,595.10</b>	<b>160,457.65</b>	<b>259,306.95</b>	<b>1,578,794.07</b>

\* 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)**
60,415,331	456.75	76.10	501.75	4,230.00	229,863.87	38,298.06	252,510.56	2,128,788.5

\* 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).



## Richard Westra Dairy 2023

### Nutrient Applications (Attachment B)

Field Name: B3

Wheat, 73 Acres Planted on 12/15/2022

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)	
				% Moist.	Nitrogen	Phos.	Potass.								
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00		%			1,022					
01/08/2023	Surface Water: Tulare	4.54	Acre Inches		0.00		mg/L			0	0	0	2,249		
01/08/2023	Waste Water: Main Lagoon	0.64	Acre Inches		183.00	42.70	591.00	mg/L		1,268,649	1,934	451	6,246	48,929	
03/07/2023	Surface Water: Tulare	4.93	Acre Inches		0.00		mg/L			0	0	0	2,442		
03/07/2023	Waste Water: Main Lagoon	0.35	Acre Inches		463.00	82.50	612.00	mg/L		693,792	2,675	477	3,537	24,504	
05/04/2023	Surface Water: Tulare	4.86	Acre Inches		0.00		mg/L			0	0	0	2,408		
05/04/2023	Waste Water: Main Lagoon	0.34	Acre Inches		442.00	106.00	457.00	mg/L		673,970	2,481	595	2,566	21,951	
05/19/2023	Harvest	19.20	Tons	70.00	0.93	0.32	1.90	%						7,855	
<b>Acre Inches Applied:</b>		<b>15.66</b>						<b>Totals:</b>		<b>2,636,411</b>	<b>8,112</b>	<b>1,523</b>	<b>12,349</b>	<b>102,483</b>	<b>7,855</b>
<b>Season Nitrogen Ratio:</b>		<b>1.03</b>						<b>Lbs Per Acre:</b>		<b>111</b>	<b>21</b>	<b>169</b>	<b>1,404</b>	<b>108</b>	

## Richard Westra Dairy 2023

### Nutrient Applications (Attachment B)

Field Name: B3

Corn, 73 Acres Planted on 07/25/2023

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.								
08/06/2023	Surface Water: Tulare	5.48	Acre Inches		0.00				0	0	0	2,715		
08/06/2023	Waste Water: Main Lagoon	0.94	Acre Inches		436.00	57.40	401.00	mg/L	1,863,328	6,767	891	6,224	69,847	
08/21/2023	Surface Water: Tulare	6.68	Acre Inches		0.00			mg/L		0	0	0	3,309	
09/05/2023	Surface Water: Tulare	5.56	Acre Inches		0.00			mg/L		0	0	0	2,754	
09/05/2023	Waste Water: Main Lagoon	0.95	Acre Inches		436.00	57.40	401.00	mg/L	1,883,151	6,839	900	6,290	70,590	
09/19/2023	Ground Water: Well Avg	6.76	Acre Inches		8.40			mg/L		937	0	0	28,464	
10/01/2023	Ground Water: Well Avg	5.48	Acre Inches		8.40			mg/L		760	0	0	23,075	
10/01/2023	Waste Water: Main Lagoon	0.45	Acre Inches		486.00	58.50	537.00	mg/L	892,019	3,611	434	3,990	31,728	
10/13/2023	Ground Water: Well Avg	6.34	Acre Inches		8.40			mg/L		880	0	0	26,695	
10/24/2023	Harvest	29.00	Tons	65.50	1.00	0.28	1.07	%					14,607	
<b>Acre Inches Applied:</b>		<b>38.64</b>						<b>Totals:</b>	<b>4,638,498</b>	<b>19,795</b>	<b>2,225</b>	<b>16,505</b>	<b>259,177</b>	<b>14,607</b>
<b>Season Nitrogen Ratio:</b>		<b>1.36</b>						<b>Lbs Per Acre:</b>		271	30	226	3,550	200

## Richard Westra Dairy 2023

### Nutrient Applications (Attachment B)

Field Name: RW1

Wheat, 34 Acres Planted on 12/22/2022

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)	
				% Moist.	Nitrogen	Phos.	Potass.								
11/22/2022	Corral Solids: Main Corral	4.00	Tons	35.60	2.93	1.02	3.28	%	136	5,132	1,787	5,746	0		
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%		476					
01/15/2023	Surface Water: Tulare	4.40	Acre Inches		0.00			mg/L		0	0	0	1,015		
01/15/2023	Waste Water: Main Lagoon	0.31	Acre Inches		463.00	82.50	612.00	mg/L		286,206	1,104	197	1,459	10,109	
03/14/2023	Surface Water: Tulare	5.22	Acre Inches		0.00			mg/L		0	0	0	1,204		
03/14/2023	Waste Water: Main Lagoon	0.37	Acre Inches		463.00	82.50	612.00	mg/L		341,601	1,318	235	1,741	12,065	
05/11/2023	Surface Water: Tulare	5.08	Acre Inches		0.00			mg/L		0	0	0	1,172		
05/11/2023	Waste Water: Main Lagoon	0.36	Acre Inches		442.00	106.00	457.00	mg/L		332,369	1,224	293	1,265	10,825	
05/26/2023	Harvest	21.50	Tons	57.60	1.10	0.32	1.40	%						6,819	
<b>Acre Inches Applied:</b>		<b>15.74</b>		<b>Totals:</b>					<b>136</b>	<b>960,176</b>	<b>9,253</b>	<b>2,511</b>	<b>10,211</b>	<b>36,391</b>	<b>6,819</b>
<b>Season Nitrogen Ratio:</b>		<b>1.36</b>		<b>Lbs Per Acre:</b>						<b>272</b>	<b>74</b>	<b>300</b>	<b>1,070</b>	<b>201</b>	



## Richard Westra Dairy 2023

### Nutrient Applications (Attachment B)

Field Name: RW1

Corn, 34 Acres Planted on 07/14/2023

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.								
07/26/2023	Surface Water: Tulare	5.65	Acre Inches		0.00				0	0	0	1,304		
07/26/2023	Waste Water: Main Lagoon	0.97	Acre Inches		436.00	57.40	401.00	mg/L	895,549	3,252	428	2,991	33,570	
08/10/2023	Surface Water: Tulare	7.17	Acre Inches		0.00			mg/L		0	0	0	1,654	
08/25/2023	Surface Water: Tulare	5.81	Acre Inches		0.00			mg/L		0	0	0	1,341	
08/25/2023	Waste Water: Main Lagoon	0.47	Acre Inches		436.00	57.40	401.00	mg/L	433,926	1,576	207	1,449	16,266	
09/08/2023	Ground Water: Well Avg	7.35	Acre Inches		8.40			mg/L		475	0	0	14,414	
09/22/2023	Ground Water: Well Avg	5.65	Acre Inches		8.40			mg/L		365	0	0	11,080	
09/22/2023	Waste Water: Main Lagoon	0.48	Acre Inches		486.00	58.50	537.00	mg/L	443,158	1,794	216	1,982	15,763	
10/02/2023	Ground Water: Well Avg	6.43	Acre Inches		8.40			mg/L		415	0	0	12,610	
10/13/2023	Harvest	29.00	Tons	69.30	1.05	0.26	1.09	%					6,357	
<b>Acre Inches Applied:</b>		<b>39.98</b>							<b>Totals:</b>	<b>1,772,633</b>	<b>7,878</b>	<b>851</b>	<b>6,423</b>	<b>108,001</b>
<b>Season Nitrogen Ratio:</b>		<b>1.24</b>							<b>Lbs Per Acre:</b>	<b>232</b>	<b>25</b>	<b>189</b>	<b>3,176</b>	<b>187</b>

# Richard Westra Dairy 2023

## Nutrient Applications (Attachment B)

Field Name: RW2

Corn, 58 Acres Planted on 05/11/2023

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.								
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00		%			812					
05/23/2023	Surface Water: Tulare	5.52	Acre Inches		0.00		mg/L			0	0	0	2,173		
05/23/2023	Waste Water: Main Lagoon	0.94	Acre Inches		442.00	106.00	457.00	mg/L		1,480,452	5,451	1,307	5,636	48,219	
06/07/2023	Surface Water: Tulare	6.79	Acre Inches		0.00		mg/L			0	0	0	2,673		
06/22/2023	Surface Water: Tulare	5.61	Acre Inches		0.00		mg/L			0	0	0	2,208		
06/22/2023	Waste Water: Main Lagoon	0.96	Acre Inches		442.00	106.00	457.00	mg/L		1,511,951	5,567	1,335	5,756	49,245	
07/06/2023	Ground Water: Well Avg	6.90	Acre Inches		8.40		mg/L			760	0	0	23,083		
07/18/2023	Ground Water: Well Avg	5.52	Acre Inches		8.40		mg/L			608	0	0	18,467		
07/18/2023	Waste Water: Main Lagoon	0.94	Acre Inches		436.00	57.40	401.00	mg/L		1,480,452	5,377	708	4,945	55,495	
07/30/2023	Ground Water: Well Avg	6.36	Acre Inches		8.40		mg/L			701	0	0	21,277		
08/10/2023	Harvest	27.00	Tons	59.50	1.27	0.23	1.65	%						16,110	
<b>Acre Inches Applied:</b>		<b>39.54</b>						<b>Totals:</b>		<b>4,472,856</b>	<b>19,276</b>	<b>3,350</b>	<b>16,337</b>	<b>222,839</b>	<b>16,110</b>
<b>Season Nitrogen Ratio:</b>		<b>1.20</b>						<b>Lbs Per Acre:</b>		<b>332</b>	<b>58</b>	<b>282</b>	<b>3,842</b>	<b>278</b>	

## Richard Westra Dairy 2023

### Nutrient Applications (Attachment B)

Field Name: RW3

Wheat, 37 Acres Planted on 12/15/2022

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)	
				% Moist.	Nitrogen	Phos.	Potass.								
11/25/2022	Corral Solids: Main Corral	4.00	Tons	35.60	2.93	1.02	3.28	%	148	5,585	1,944	6,253	0		
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%		518					
01/10/2023	Surface Water: Tulare	4.42	Acre Inches		0.00			mg/L		0	0	0	1,110		
01/10/2023	Waste Water: Main Lagoon	0.31	Acre Inches		183.00	42.70	591.00	mg/L	311,460	475	111	1,533	12,012		
03/09/2023	Surface Water: Tulare	5.17	Acre Inches		0.00			mg/L		0	0	0	1,298		
03/09/2023	Waste Water: Main Lagoon	0.37	Acre Inches		463.00	82.50	612.00	mg/L	371,742	1,434	255	1,895	13,130		
05/02/2023	Surface Water: Tulare	5.05	Acre Inches		0.00			mg/L		0	0	0	1,268		
05/02/2023	Waste Water: Main Lagoon	0.36	Acre Inches		442.00	106.00	457.00	mg/L	361,695	1,332	319	1,377	11,780		
05/19/2023	Harvest	21.80	Tons	68.70	1.35	0.36	2.25	%						6,817	
<b>Acre Inches Applied:</b>		<b>15.68</b>		<b>Totals:</b>					148	1,044,897	9,343	2,630	11,058	40,598	6,817
<b>Season Nitrogen Ratio:</b>		<b>1.37</b>		<b>Lbs Per Acre:</b>						253	71	299	1,097		184

## Richard Westra Dairy 2023

### Nutrient Applications (Attachment B)

Field Name: RW3

Corn, 37 Acres Planted on 07/14/2023

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)
07/28/2023	Surface Water: Tulare	5.63	Acre Inches	0.00		mg/L			0	0	0	0	1,413	
07/28/2023	Waste Water: Main Lagoon	0.96	Acre Inches	436.00	57.40	401.00	mg/L	964,521	3,503	461	3,222	36,155		
08/10/2023	Surface Water: Tulare	7.09	Acre Inches	0.00		mg/L			0	0	0	0	1,780	
08/20/2023	Surface Water: Tulare	5.77	Acre Inches	0.00		mg/L			0	0	0	0	1,449	
08/20/2023	Waste Water: Main Lagoon	0.99	Acre Inches	436.00	57.40	401.00	mg/L	994,662	3,612	475	3,323	37,285		
09/03/2023	Ground Water: Well Avg	7.26	Acre Inches	8.40		mg/L			510	0	0	0	15,494	
09/15/2023	Ground Water: Well Avg	5.63	Acre Inches	8.40		mg/L			396	0	0	0	12,015	
09/15/2023	Waste Water: Main Lagoon	0.48	Acre Inches	486.00	58.50	537.00	mg/L	482,260	1,952	235	2,157	17,154		
09/30/2023	Ground Water: Well Avg	6.42	Acre Inches	8.40		mg/L			451	0	0	0	13,701	
10/13/2023	Harvest	30.20	Tons	68.90	1.15	0.27	0.96	%						7,993
Acre Inches Applied:		40.23		Totals:				2,441,443	10,425	1,171	8,702	136,446		7,993
Season Nitrogen Ratio:		1.30		Lbs Per Acre:					282	32	235	3,688		216

# Richard Westra Dairy 2023

## Nutrient Applications (Attachment B)

Field Name: RW4

Wheat, 17 Acres Planted on 12/15/2022

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)	
				% Moist.	Nitrogen	Phos.	Potass.								
11/23/2022	Corral Solids: Main Corral	4.00	Tons	35.60	2.93	1.02	3.28	%	68	2,566	893	2,873	0		
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%		238					
01/06/2023	Surface Water: Tulare	4.12	Acre Inches		0.00			mg/L		0	0	0	475		
01/06/2023	Waste Water: Main Lagoon	0.29	Acre Inches		183.00	42.70	591.00	mg/L		133,871	204	48	659	5,163	
03/05/2023	Surface Water: Tulare	5.77	Acre Inches		0.00			mg/L		0	0	0	666		
03/05/2023	Waste Water: Main Lagoon	0.41	Acre Inches		463.00	82.50	612.00	mg/L		189,265	730	130	965	6,685	
05/02/2023	Surface Water: Tulare	5.49	Acre Inches		0.00			mg/L		0	0	0	633		
05/02/2023	Waste Water: Main Lagoon	0.39	Acre Inches		442.00	106.00	457.00	mg/L		180,033	663	159	685	5,864	
05/19/2023	Harvest	19.80	Tons	68.10	1.50	0.36	1.95	%						3,221	
<b>Acre Inches Applied:</b>		<b>16.47</b>		<b>Totals:</b>					<b>68</b>	<b>503,169</b>	<b>4,401</b>	<b>1,230</b>	<b>5,182</b>	<b>19,486</b>	<b>3,221</b>
<b>Season Nitrogen Ratio:</b>		<b>1.37</b>		<b>Lbs Per Acre:</b>						<b>259</b>	<b>72</b>	<b>305</b>	<b>1,146</b>	<b>189</b>	

# Richard Westra Dairy 2023

## Nutrient Applications (Attachment B)

Field Name: RW4

Corn, 17 Acres Planted on 07/07/2023

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.								
07/19/2023	Surface Water: Tulare	5.97	Acre Inches		0.00				0	0	0	689		
07/19/2023	Waste Water: Main Lagoon	1.02	Acre Inches		436.00	57.40	401.00	mg/L	470,856	1,710	225	1,573	17,650	
08/03/2023	Surface Water: Tulare	8.09	Acre Inches		0.00			mg/L		0	0	0	933	
08/18/2023	Surface Water: Tulare	6.28	Acre Inches		0.00			mg/L		0	0	0	725	
08/18/2023	Waste Water: Main Lagoon	1.07	Acre Inches		436.00	57.40	401.00	mg/L	493,937	1,794	236	1,650	18,515	
09/01/2023	Ground Water: Well Avg	8.46	Acre Inches		8.40			mg/L		273	0	0	8,295	
09/15/2023	Ground Water: Well Avg	5.97	Acre Inches		8.40			mg/L		193	0	0	5,854	
09/15/2023	Waste Water: Main Lagoon	0.51	Acre Inches		486.00	58.50	537.00	mg/L	235,428	953	115	1,053	8,374	
09/25/2023	Ground Water: Well Avg	6.62	Acre Inches		8.40			mg/L		214	0	0	6,491	
10/06/2023	Harvest	30.40	Tons	72.50	1.33	0.27	1.51	%					3,780	
Acre Inches Applied:		43.99						Totals:	1,200,220	5,137	576	4,276	67,527	3,780
Season Nitrogen Ratio:		1.36						Lbs Per Acre:	302	34	252	3,972	222	

## Richard Westra Dairy 2023

### Nutrient Applications (Attachment B)

Field Name: RW5

Wheat, 77 Acres Planted on 12/15/2022

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)	
				% Moist.	Nitrogen	Phos.	Potass.								
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00		%			1,078					
01/12/2023	Surface Water: Tulare	4.55	Acre Inches		0.00		mg/L			0	0	0	2,378		
01/12/2023	Waste Water: Main Lagoon	0.64	Acre Inches		183.00	42.70	591.00	mg/L		1,338,164	2,040	476	6,588	51,610	
03/11/2023	Surface Water: Tulare	4.91	Acre Inches		0.00		mg/L			0	0	0	2,566		
03/11/2023	Waste Water: Main Lagoon	0.35	Acre Inches		463.00	82.50	612.00	mg/L		731,808	2,822	503	3,731	25,847	
04/27/2023	Surface Water: Tulare	4.85	Acre Inches		0.00		mg/L			0	0	0	2,534		
04/27/2023	Waste Water: Main Lagoon	0.34	Acre Inches		442.00	106.00	457.00	mg/L		710,900	2,617	628	2,707	23,154	
05/19/2023	Harvest	18.70	Tons	70.00	1.13	0.32	1.89	%						9,763	
<b>Acre Inches Applied:</b>		<b>15.64</b>						<b>Totals:</b>		<b>2,780,872</b>	<b>8,557</b>	<b>1,606</b>	<b>13,025</b>	<b>108,088</b>	<b>9,763</b>
<b>Season Nitrogen Ratio:</b>		<b>0.88</b>						<b>Lbs Per Acre:</b>		<b>111</b>	<b>21</b>	<b>169</b>	<b>1,404</b>	<b>127</b>	

## Richard Westra Dairy 2023

### Nutrient Applications (Attachment B)

Field Name: RW5

Corn, 77 Acres Planted on 07/25/2023

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.							
08/10/2023	Surface Water: Tulare	5.48	Acre Inches		0.00					0	0	0	2,864	
08/10/2023	Waste Water: Main Lagoon	0.94	Acre Inches		436.00	57.40	401.00	mg/L		1,965,428	7,138	939	6,565	73,674
08/25/2023	Surface Water: Tulare	6.66	Acre Inches		0.00			mg/L			0	0	0	3,480
09/06/2023	Surface Water: Tulare	5.55	Acre Inches		0.00			mg/L			0	0	0	2,900
09/06/2023	Waste Water: Main Lagoon	0.95	Acre Inches		436.00	57.40	401.00	mg/L		1,986,337	7,214	949	6,635	74,457
09/17/2023	Ground Water: Well Avg	6.74	Acre Inches		8.40			mg/L			986	0	0	29,935
09/27/2023	Ground Water: Well Avg	5.48	Acre Inches		8.40			mg/L			802	0	0	24,339
09/27/2023	Waste Water: Main Lagoon	0.47	Acre Inches		486.00	58.50	537.00	mg/L		982,714	3,979	479	4,396	34,954
10/09/2023	Ground Water: Well Avg	6.33	Acre Inches		8.40			mg/L			926	0	0	28,113
10/24/2023	Harvest	31.00	Tons	64.50	1.01	0.27	1.00	%						17,117
<b>Acre Inches Applied:</b>		<b>38.60</b>		<b>Totals:</b>					<b>4,934,479</b>	<b>21,045</b>	<b>2,368</b>	<b>17,596</b>	<b>274,716</b>	<b>17,117</b>
<b>Season Nitrogen Ratio:</b>		<b>1.23</b>		<b>Lbs Per Acre:</b>					<b>273</b>	<b>31</b>	<b>229</b>	<b>3,568</b>	<b>222</b>	



## Richard Westra Dairy 2023

### Nutrient Applications (Attachment B)

Field Name: RW6

Wheat, 71 Acres Planted on 12/22/2022

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)	
				%	Moist.	Nitrogen	Phos.								
01/01/2023	Atmospheric Deposit	14.00	Pounds	100.00		%				994					
01/15/2023	Surface Water: Tulare	4.54	Acre Inches	0.00		mg/L				0	0	0	2,188		
01/15/2023	Waste Water: Main Lagoon	0.64	Acre Inches	463.00	82.50	612.00	mg/L		1,233,891	4,759	848	6,291	43,580		
03/14/2023	Surface Water: Tulare	4.93	Acre Inches	0.00		mg/L				0	0	0	2,375		
03/14/2023	Waste Water: Main Lagoon	0.35	Acre Inches	463.00	82.50	612.00	mg/L		674,784	2,602	464	3,440	23,833		
05/11/2023	Surface Water: Tulare	4.87	Acre Inches	0.00		mg/L				0	0	0	2,347		
05/11/2023	Waste Water: Main Lagoon	0.34	Acre Inches	442.00	106.00	457.00	mg/L		655,505	2,413	579	2,496	21,350		
05/26/2023	Harvest	19.60	Tons	58.30	1.06	0.31	1.43	%						12,302	
<b>Acre Inches Applied:</b>		<b>15.67</b>						<b>Totals:</b>	<b>2,564,181</b>	<b>10,769</b>	<b>1,890</b>	<b>12,226</b>	<b>95,671</b>	<b>12,302</b>	
<b>Season Nitrogen Ratio:</b>		<b>0.88</b>						<b>Lbs Per Acre:</b>			<b>152</b>	<b>27</b>	<b>172</b>	<b>1,347</b>	<b>173</b>

## Richard Westra Dairy 2023

### Nutrient Applications (Attachment B)

**Field Name:** RW6

Corn, 71 Acres Planted on 06/28/2023

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.								
07/10/2023	Surface Water: Tulare	5.49	Acre Inches		0.00					0	0	0	2,645		
07/10/2023	Waste Water: Main Lagoon	0.94	Acre Inches		436.00	57.40	401.00	mg/L	1,812,278	6,582	866	6,053	67,934		
07/25/2023	Surface Water: Tulare	6.69	Acre Inches		0.00			mg/L		0	0	0	3,223		
08/09/2023	Surface Water: Tulare	5.56	Acre Inches		0.00			mg/L		0	0	0	2,679		
08/09/2023	Waste Water: Main Lagoon	0.95	Acre Inches		436.00	57.40	401.00	mg/L	1,831,558	6,652	875	6,118	68,656		
08/23/2023	Ground Water: Well Avg	6.78	Acre Inches		8.40			mg/L		914	0	0	27,766		
09/06/2023	Ground Water: Well Avg	5.49	Acre Inches		8.40			mg/L		741	0	0	22,483		
09/06/2023	Waste Water: Main Lagoon	0.47	Acre Inches		436.00	57.40	401.00	mg/L	906,139	3,291	433	3,027	33,966		
09/16/2023	Ground Water: Well Avg	6.34	Acre Inches		8.40			mg/L		856	0	0	25,964		
09/27/2023	Harvest	29.90	Tons	75.60	1.32	0.29	1.55	%						13,675	
<b>Acre Inches Applied:</b>		<b>38.71</b>							<b>Totals:</b>	<b>4,549,975</b>	<b>19,035</b>	<b>2,175</b>	<b>15,198</b>	<b>255,315</b>	<b>13,675</b>
<b>Season Nitrogen Ratio:</b>		<b>1.39</b>							<b>Lbs Per Acre:</b>	<b>268</b>	<b>31</b>	<b>214</b>	<b>3,596</b>	<b>193</b>	

## Richard Westra Dairy 2023 Nutrient Applications (Attachment B)

Field Name: RW7

Wheat, 24 Acres Planted on 12/15/2022

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)	
				% Moist.	Nitrogen	Phos.	Potass.								
11/24/2022	Corral Solids: Main Corral	4.00	Tons	35.60	2.93	1.02	3.28	%	96	3,623	1,261	4,056	0		
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%		336					
01/04/2023	Surface Water: Tulare	4.28	Acre Inches		0.00			mg/L		0	0	0	697		
01/04/2023	Waste Water: Main Lagoon	0.30	Acre Inches		183.00	42.70	591.00	mg/L	195,511	298	70	962	7,541		
03/03/2023	Surface Water: Tulare	5.45	Acre Inches		0.00			mg/L		0	0	0	888		
03/03/2023	Waste Water: Main Lagoon	0.39	Acre Inches		463.00	82.50	612.00	mg/L	254,164	980	175	1,296	8,977		
04/30/2023	Surface Water: Tulare	5.25	Acre Inches		0.00			mg/L		0	0	0	855		
04/30/2023	Waste Water: Main Lagoon	0.37	Acre Inches		442.00	106.00	457.00	mg/L	241,130	888	213	918	7,854		
05/19/2023	Harvest	19.30	Tons	67.30	1.48	0.34	2.18	%						4,483	
<b>Acre Inches Applied:</b>		<b>16.04</b>		<b>Totals:</b>					<b>96</b>	<b>690,805</b>	<b>6,125</b>	<b>1,718</b>	<b>7,232</b>	<b>26,811</b>	<b>4,483</b>
<b>Season Nitrogen Ratio:</b>		<b>1.37</b>		<b>Lbs Per Acre:</b>						<b>255</b>	<b>72</b>	<b>301</b>	<b>1,117</b>	<b>187</b>	



## Richard Westra Dairy 2023

### Nutrient Applications (Attachment B)

Field Name: RW7

Corn, 24 Acres Planted on 06/28/2023

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.							
07/06/2023	Surface Water: Tulare	5.78	Acre Inches		0.00					0	0	0	941	
07/06/2023	Waste Water: Main Lagoon	0.99	Acre Inches		436.00	57.40	401.00	mg/L		645,186	2,343	308	2,155	24,185
07/21/2023	Surface Water: Tulare	7.55	Acre Inches		0.00			mg/L			0	0	0	1,230
08/05/2023	Surface Water: Tulare	6.01	Acre Inches		0.00			mg/L			0	0	0	979
08/05/2023	Waste Water: Main Lagoon	1.03	Acre Inches		436.00	57.40	401.00	mg/L		671,254	2,438	321	2,242	25,162
08/19/2023	Ground Water: Well Avg	7.81	Acre Inches		8.40			mg/L			356	0	0	10,812
09/02/2023	Ground Water: Well Avg	5.78	Acre Inches		8.40			mg/L			264	0	0	8,001
09/02/2023	Waste Water: Main Lagoon	0.49	Acre Inches		436.00	57.40	401.00	mg/L		319,335	1,160	153	1,067	11,970
09/12/2023	Ground Water: Well Avg	6.51	Acre Inches		8.40			mg/L			297	0	0	9,012
09/27/2023	Harvest	29.00	Tons	72.10	1.29	0.28	1.52	%						5,010
Acre Inches Applied:		41.95		Totals:					1,635,775	6,857	782	5,464	92,292	5,010
Season Nitrogen Ratio:		1.37		Lbs Per Acre:						286	33	228	3,845	209



**Richard Westra Dairy 2023  
Nutrient Applications (Attachment B)**

Field Name: RWP

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	%				42				
	Acre Inches Applied:	0.00			Totals:				42				
Season Nitrogen Ratio:				Lbs Per Acre:					14				

Season Notes: Fallow.

# Richard Westra Dairy 2023

## Nutrient Applications (Attachment B)

Field Name: WH1

Wheat, 58 Acres Planted on 12/22/2022

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)	
				% Moist.	Nitrogen	Phos.	Potass.								
11/28/2022	Corral Solids: Main Corral	4.00	Tons	35.60	2.93	1.02	3.28	%	232	8,755	3,048	9,801	0		
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%		812					
01/16/2023	Surface Water: Tulare	4.51	Acre Inches		0.00			mg/L		0	0	0	1,775		
01/16/2023	Waste Water: Main Lagoon	0.32	Acre Inches		463.00	82.50	612.00	mg/L	503,984	1,944	346	2,569	17,800		
03/15/2023	Surface Water: Tulare	4.99	Acre Inches		0.00			mg/L		0	0	0	1,964		
03/15/2023	Waste Water: Main Lagoon	0.35	Acre Inches		463.00	82.50	612.00	mg/L	551,232	2,126	379	2,810	19,469		
05/07/2023	Surface Water: Tulare	4.91	Acre Inches		0.00			mg/L		0	0	0	1,933		
05/07/2023	Waste Water: Main Lagoon	0.35	Acre Inches		442.00	106.00	457.00	mg/L	551,232	2,029	487	2,098	17,954		
05/26/2023	Harvest	20.55	Tons	57.70	1.11	0.29	1.45	%						11,193	
<b>Acre Inches Applied:</b>		<b>15.43</b>		<b>Totals:</b>					232	1,606,448	15,666	4,260	17,279	60,894	<b>11,193</b>
<b>Season Nitrogen Ratio:</b>		<b>1.40</b>		<b>Lbs Per Acre:</b>					270	73	298	1,050		193	

## Richard Westra Dairy 2023

### Nutrient Applications (Attachment B)

Field Name: WH1

Corn, 58 Acres Planted on 07/14/2023

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)
07/27/2023	Surface Water: Tulare	5.52	Acre Inches	0.00		mg/L		0	0	0	0	2,173	
07/27/2023	Waste Water: Main Lagoon	0.94	Acre Inches	436.00	57.40	401.00	mg/L	1,480,452	5,377	708	4,945	55,495	
08/11/2023	Surface Water: Tulare	6.79	Acre Inches	0.00		mg/L		0	0	0	0	2,673	
08/26/2023	Surface Water: Tulare	5.61	Acre Inches	0.00		mg/L		0	0	0	0	2,208	
08/26/2023	Waste Water: Main Lagoon	0.96	Acre Inches	436.00	57.40	401.00	mg/L	1,511,951	5,491	723	5,051	56,675	
09/09/2023	Ground Water: Well Avg	6.90	Acre Inches	8.40		mg/L		760	0	0	0	23,083	
09/23/2023	Ground Water: Well Avg	5.52	Acre Inches	8.40		mg/L		608	0	0	0	18,467	
09/23/2023	Waste Water: Main Lagoon	0.47	Acre Inches	486.00	58.50	537.00	mg/L	740,226	2,997	361	3,311	26,329	
10/03/2023	Ground Water: Well Avg	6.36	Acre Inches	8.40		mg/L		701	0	0	0	21,277	
10/13/2023	Harvest	30.80	Tons	68.80	1.16	0.28	1.00	%					12,931
Acre Inches Applied:		39.07		Totals:			3,732,630	15,934	1,791	13,307	208,380		12,931
Season Nitrogen Ratio: 1.23				Lbs Per Acre:			275	31	229	3,593			223

## Richard Westra Dairy 2023

### Nutrient Applications (Attachment B)

Field Name: WH2

Wheat, 76 Acres Planted on 12/11/2022

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)	
				% Moist.	Nitrogen	Phos.	Potass.								
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00		%			1,064					
01/01/2023	Surface Water: Tulare	4.55	Acre Inches		0.00		mg/L			0	0	0	2,347		
01/01/2023	Waste Water: Main Lagoon	0.64	Acre Inches		183.00	42.70	591.00	mg/L		1,320,785	2,013	470	6,503	50,940	
02/28/2023	Surface Water: Tulare	4.92	Acre Inches		0.00		mg/L			0	0	0	2,538		
02/28/2023	Waste Water: Main Lagoon	0.35	Acre Inches		463.00	82.50	612.00	mg/L		722,304	2,785	496	3,682	25,511	
04/27/2023	Surface Water: Tulare	4.85	Acre Inches		0.00		mg/L			0	0	0	2,501		
04/27/2023	Waste Water: Main Lagoon	0.34	Acre Inches		442.00	106.00	457.00	mg/L		701,667	2,583	619	2,671	22,853	
05/19/2023	Harvest	20.50	Tons	68.00	1.12	0.28	1.48	%						11,167	
<b>Acre Inches Applied:</b>		<b>15.65</b>						<b>Totals:</b>		<b>2,744,757</b>	<b>8,446</b>	<b>1,585</b>	<b>12,856</b>	<b>106,690</b>	<b>11,167</b>
<b>Season Nitrogen Ratio:</b>		<b>0.76</b>						<b>Lbs Per Acre:</b>		<b>111</b>	<b>21</b>	<b>169</b>	<b>1,404</b>	<b>147</b>	

## Richard Westra Dairy 2023 Nutrient Applications (Attachment B)

**Field Name:** WH2

Corn, 76 Acres Planted on 06/25/2023

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.							
07/04/2023	Surface Water: Tulare	5.48	Acre Inches		0.00					0	0	0	2,826	
07/04/2023	Waste Water: Main Lagoon	0.94	Acre Inches		436.00	57.40	401.00	mg/L		1,939,903	7,045	927	6,480	72,718
07/19/2023	Surface Water: Tulare	6.66	Acre Inches		0.00			mg/L			0	0	0	3,434
08/03/2023	Surface Water: Tulare	5.55	Acre Inches		0.00			mg/L			0	0	0	2,862
08/03/2023	Waste Water: Main Lagoon	0.95	Acre Inches		436.00	57.40	401.00	mg/L		1,960,540	7,120	937	6,549	73,490
08/17/2023	Ground Water: Well Avg	6.74	Acre Inches		8.40			mg/L			974	0	0	29,546
08/31/2023	Ground Water: Well Avg	5.48	Acre Inches		8.40			mg/L			791	0	0	24,023
08/31/2023	Waste Water: Main Lagoon	0.48	Acre Inches		436.00	57.40	401.00	mg/L		990,589	3,598	473	3,309	37,132
09/10/2023	Ground Water: Well Avg	6.33	Acre Inches		8.40			mg/L			914	0	0	27,748
10/24/2023	Harvest	28.00	Tons	65.00	1.02	0.28	1.10	%						15,194
<b>Acre Inches Applied:</b>		<b>38.61</b>		<b>Totals:</b>					4,891,033	20,442	2,338	16,338	273,780	<b>15,194</b>
<b>Season Nitrogen Ratio:</b>		<b>1.35</b>		<b>Lbs Per Acre:</b>					269	31	215	3,602		<b>200</b>

# Richard Westra Dairy 2023

## Nutrient Applications (Attachment B)

Field Name: WH3

Wheat, 65 Acres Planted on 12/15/2022

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)
11/17/2022	Corral Solids: Main Corral	4.00	Tons	35.60	2.93	1.02	3.28	%	260		9,812	3,416	10,984	0	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			910				
01/11/2023	Surface Water: Tulare	4.53	Acre Inches		0.00			mg/L			0	0	0	1,998	
01/11/2023	Waste Water: Main Lagoon	0.32	Acre Inches		183.00	42.70	591.00	mg/L		564,809	861	201	2,781	21,783	
03/10/2023	Surface Water: Tulare	4.96	Acre Inches		0.00			mg/L			0	0	0	2,188	
03/10/2023	Waste Water: Main Lagoon	0.35	Acre Inches		463.00	82.50	612.00	mg/L		617,760	2,382	424	3,149	21,819	
05/04/2023	Surface Water: Tulare	4.89	Acre Inches		0.00			mg/L			0	0	0	2,157	
05/04/2023	Waste Water: Main Lagoon	0.35	Acre Inches		442.00	106.00	457.00	mg/L		617,760	2,274	545	2,352	20,121	
05/19/2023	Harvest	19.80	Tons	64.90	1.68	0.38	2.47	%						15,178	
<b>Acre Inches Applied:</b>		<b>15.40</b>		<b>Totals:</b>					<b>260</b>	<b>1,800,330</b>	<b>16,240</b>	<b>4,586</b>	<b>19,266</b>	<b>70,065</b>	<b>15,178</b>
<b>Season Nitrogen Ratio:</b>		<b>1.07</b>		<b>Lbs Per Acre:</b>							<b>250</b>	<b>71</b>	<b>296</b>	<b>1,078</b>	<b>234</b>



## Richard Westra Dairy 2023

### Nutrient Applications (Attachment B)

Field Name: WH3

Corn, 65 Acres Planted on 07/04/2023

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.								
07/16/2023	Surface Water: Tulare	5.50	Acre Inches		0.00					0	0	0	0	2,426	
07/16/2023	Waste Water: Main Lagoon	0.94	Acre Inches		436.00	57.40	401.00	mg/L		1,659,128	6,026	793	5,542	62,193	
07/31/2023	Surface Water: Tulare	6.73	Acre Inches		0.00			mg/L			0	0	0	2,969	
08/15/2023	Surface Water: Tulare	5.58	Acre Inches		0.00			mg/L			0	0	0	2,462	
08/15/2023	Waste Water: Main Lagoon	0.95	Acre Inches		436.00	57.40	401.00	mg/L		1,676,778	6,090	801	5,601	62,854	
08/29/2023	Ground Water: Well Avg	6.83	Acre Inches		8.40			mg/L			844	0	0	25,607	
09/12/2023	Ground Water: Well Avg	5.50	Acre Inches		8.40			mg/L			679	0	0	20,621	
09/12/2023	Waste Water: Main Lagoon	0.94	Acre Inches		486.00	58.50	537.00	mg/L		1,659,128	6,717	809	7,422	59,014	
09/22/2023	Ground Water: Well Avg	6.35	Acre Inches		8.40			mg/L			785	0	0	23,808	
10/03/2023	Harvest	30.96	Tons	71.10	1.41	0.28	1.45	%						16,401	
Acre Inches Applied:		39.32							Totals:	4,995,033	21,140	2,403	18,565	261,951	16,401
Season Nitrogen Ratio:		1.29							Lbs Per Acre:		325	37	286	4,030	252

## Richard Westra Dairy 2023

### Nutrient Applications (Attachment B)

Field Name: WH4

Corn, 49 Acres Planted on 05/11/2023

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)
01/01/2023	Atmospheric Deposit	14.00	Pounds	100.00			%			686				
05/23/2023	Surface Water: Tulare	5.56	Acre Inches	0.00			mg/L			0	0	0	1,849	
05/23/2023	Waste Water: Main Lagoon	0.95	Acre Inches	442.00	106.00	457.00	mg/L		1,264,033	4,654	1,116	4,812	41,170	
06/07/2023	Surface Water: Tulare	6.89	Acre Inches	0.00			mg/L			0	0	0	2,291	
06/22/2023	Surface Water: Tulare	5.66	Acre Inches	0.00			mg/L			0	0	0	1,882	
06/22/2023	Waste Water: Main Lagoon	0.97	Acre Inches	442.00	106.00	457.00	mg/L		1,290,644	4,752	1,140	4,913	42,037	
07/06/2023	Ground Water: Well Avg	7.02	Acre Inches	8.40			mg/L			654	0	0	19,841	
07/20/2023	Ground Water: Well Avg	5.56	Acre Inches	8.40			mg/L			517	0	0	15,714	
07/20/2023	Waste Water: Main Lagoon	0.95	Acre Inches	436.00	57.40	401.00	mg/L		1,264,033	4,591	604	4,222	47,382	
07/30/2023	Ground Water: Well Avg	6.38	Acre Inches	8.40			mg/L			594	0	0	18,032	
08/10/2023	Harvest	29.25	Tons	59.80	1.33	0.22	1.59 %							15,326
<b>Acre Inches Applied:</b>		<b>39.94</b>		<b>Totals:</b>				<b>3,818,709</b>	<b>16,448</b>	<b>2,860</b>	<b>13,947</b>	<b>190,197</b>	<b>15,326</b>	
<b>Season Nitrogen Ratio:</b>		<b>1.07</b>		<b>Lbs Per Acre:</b>				<b>336</b>	<b>58</b>	<b>285</b>	<b>3,882</b>	<b>313</b>		



**Richard Westra Dairy 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	35,473.25	12,349.25	39,712.65	0.00	940.00	tons
Process Wastewater	213,003.53	34,080.47	233,629.30	2,192,311.15	60,415,330.53	gallons
Irrigation Water	22,901.61					
Fertilizer / Total Imports	0.00					
Atmospheric Deposition	8,988.00					
<b>Total Nitrogen Applied</b>	<b>280,366.39</b>					
Crop Nitrogen Removal	233,298.01					
<b>Nitrogen Balance</b>	<b>47,068.38</b>					
<b>Nitrogen Ratio</b>	<b>1.20</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.

## Richard Westra Dairy 2023 Nutrient Applications (Attachment B)

### FIELD NITROGEN RATIO Calculation:

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

### ATMOSHERIC DEPOSITION Applied (lbs) Calculation:

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

### HARVEST Nitrogen Extraction (Lbs) Calculation:

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

### IRRIGATION Nitrogen and Salts Applied (Lbs) Calculations:

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

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

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

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

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

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

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

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

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

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

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

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

### "Lbs Applied per Acre" Calculations:

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

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

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

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

## Richard Westra Dairy 2023

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

#### A. ESTIMATED TOTAL MANURE TRANSFERRED OFFSITE

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

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

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

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

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

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

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

**Richard Westra Dairy 2023**  
**Land Application Area Description Technical Report (Attachment D)**

Field Name	Assessor Parcel Number(s)	Acres	Type of Waste Applied
B3	x147 x030 x012 xxxx	73	Process Wastewater
RW1	x147 x030 x023 xxxx	34	Both
RW2	x147 x030 x022 xxxx	58	Process Wastewater
RW3	x147 x030 x001 xxxx	37	Both
RW4	x147 x030 x001 xxxx	17	Both
RW5	x147 x030 x001 xxxx	77	Process Wastewater
RW6	x147 x030 x013 xxxx	71	Process Wastewater
RW7	x147 x040 x002 xxxx	24	Both
RWP	x147 x040 x002 xxxx	3	None
WH1	x147 x040 x003 xxxx	58	Both
WH2	x147 x040 x001 xxxx	76	Process Wastewater
WH3	x147 x040 x023 xxxx	65	Both
WH4	x147 x040 x021 xxxx	49	Process Wastewater
		<b>642</b>	

Production Area APN(s): x147 x040 x002 xxxx, x147 x040 x003 xxxx, x147 x040 x021 xxxx, x147 x040 x022 xxxx, x147 x040 x023 xxxx



**Richard Westra Dairy 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
02/14/2023	463.00	82.50	612.00	6,380	291.00		4,240.00								
06/09/2023	442.00	106.00	457.00	5,890	383.00	0.00	3,910.00	7.58							
07/12/2023	436.00	57.40	401.00	6,780	397.00		4,500.00								
11/06/2023	486.00	58.50	537.00	6,430	484.00		4,270.00								
<b>Averages:</b>	<b>456.75</b>	<b>76.10</b>	<b>501.75</b>	<b>6,370</b>	<b>388.75</b>	<b>0.00</b>	<b>4,230.00</b>	<b>7.58</b>							

**Manure - Corral Solids**

(Dry Weight Basis)

Sample Date:	TN	TP	TK	Moisture	Ash	CA	MG	NA	S	CL
06/12/2023	2.62	0.53	0.68	8.52						%
11/06/2023	1.47	0.53	1.69	29.50						%
<b>Averages:</b>	<b>2.04</b>	<b>0.53</b>	<b>1.18</b>	<b>19.01</b>						

**Plant Tissue**

(Dry Weight Basis)

Field:	Crop #:	Crop	Sample Date:	TN (lbs/ton)	TP (lbs/ton)	TK (lbs/ton)	Moisture (%)	Ash (%)
B3	1	Wheat	05/19/2023	18.68	6.40	38.00	70.00	9.33
B3	2	Corn	10/24/2023	20.00	5.64	21.40	65.50	5.24



**Richard Westra Dairy 2023  
Lab Results Summary (Attachment E)**

**Plant Tissue**

(Dry Weight Basis)

Field:	Crop #:	Crop	Sample Date:	TN (lbs/ton)	TP (lbs/ton)	TK (lbs/ton)	Moisture (%)	Ash (%)
RW1	1	Wheat	05/26/2023	22.00	6.40	28.00	57.60	8.34
RW1	2	Corn	10/13/2023	21.00	5.18	21.80	69.30	5.45
RW2	1	Corn	08/10/2023	25.40	4.68	33.00	59.50	8.14
RW3	1	Wheat	05/19/2023	27.00	7.16	45.00	68.70	10.20
RW3	2	Corn	10/13/2023	23.00	5.38	19.14	68.90	4.98
RW4	1	Wheat	05/19/2023	30.00	7.24	39.00	68.10	9.28
RW4	2	Corn	10/06/2023	26.60	5.44	30.20	72.50	5.99
RW5	1	Wheat	05/19/2023	22.60	6.48	37.80	70.00	9.59
RW5	2	Corn	10/24/2023	20.20	5.36	20.00	64.50	4.93
RW6	1	Wheat	05/26/2023	21.20	6.22	28.60	58.30	8.37
RW6	2	Corn	09/27/2023	26.40	5.74	31.00	75.60	6.58
RW7	1	Wheat	05/19/2023	29.60	6.88	43.60	67.30	9.19
RW7	2	Corn	09/27/2023	25.80	5.64	30.40	72.10	5.93
RWP	1	FALLOW						
WH1	1	Wheat	05/26/2023	22.20	5.84	29.00	57.70	8.29
WH1	2	Corn	10/13/2023	23.20	5.70	20.00	68.80	5.43
WH2	1	Wheat	05/19/2023	22.40	5.52	29.60	68.00	8.64
WH2	2	Corn	10/24/2023	20.40	5.58	22.00	65.00	5.13



**Richard Westra Dairy 2023  
Lab Results Summary (Attachment E)**

**Plant Tissue**

(Dry Weight Basis)

Field:	Crop #:	Crop	Sample Date:	TN (lbs/ton)	TP (lbs/ton)	TK (lbs/ton)	Moisture (%)	Ash (%)
WH3	1	Wheat	05/19/2023	33.60	7.56	49.40	64.90	9.41
WH3	2	Corn	10/03/2023	28.20	5.58	29.00	71.10	6.12
WH4	1	Corn	08/10/2023	26.60	4.46	31.80	59.80	7.62

**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>Dairy</b>														
RWDE	06/21/2023	13.80		369		240.00		16.00	0.00	56.00	70.00	0.00	12.70	19.00
RWDW	06/21/2023	13.10		474		290.00		26.00	0.00	72.00	120.00	0.00	18.10	25.00
<b>Averages:</b>				422		265.00		21.00	0.00	64.00	95.00	0.00	15.40	22.00

# Richard Westra Dairy 2023

## Lab Results Summary (Attachment E)

### **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>														
RWD1	12/15/2023	16.00		384		250.00		18.00	0.00	66.00	50.00	0.00	12.90	27.00
RWD2								Out of service						
RWD3								Out of service						
WHD1	12/20/2023	12.00		361		250.00		35.00	1.00	40.00	90.00	0.00	12.00	14.00
WHH2								Out of service						
<b>Averages:</b>		14.00		372		250.00		26.50	0.50	53.00	70.00	0.00	12.45	20.50
<b>Irrigation</b>														
RW2								Did not run						
RW3								Did not run						
RW4	10/10/2023	11.00		482		310.00	11.00	43.00	0.00	54.00	110.00	0.00	15.00	34.00
RW5								Out of service						
RW6								Did not run						
RW5B								Did not run						
WH1								Did not run						
WH2	10/04/2023	5.80		280		200.00	5.80							
WH5								Did not run						
<b>Averages:</b>		8.40		381		255.00	8.40	43.00	0.00	54.00	110.00	0.00	15.00	34.00



**INNOVATIVE AG SERVICES**

## Richard Westra Dairy 2023 Lab Results Summary (Attachment E)

### **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>Surface Water</b>														
Tulare (General)	06/28/2023	0.00		42		30.00	0.00							
Averages:		0.00		42		30.00	0.00							

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

### **Soils**

Field	Sample Date:	PO4P (ppm)
B3	06/14/2023	19.80
RW1	06/14/2023	60.00
RW3	06/14/2023	59.00
RW4	06/14/2023	60.30
RW5	06/14/2023	49.50
RW6	06/14/2023	36.20
RW7	06/14/2023	149.00
RWP	06/14/2023	55.70
WH1	06/14/2023	101.00
WH2	06/14/2023	67.10
WH3	06/14/2023	69.60



## Richard Westra Dairy 2023

### Planting and Harvest Information (Attachment F)

Crop #	Crop	Acres Planted	Plant Date	Harvest Date	Estimated Yield (tons)	Tons Harvested	Actual Yield
Field: B3							
	1 Wheat	73	12/15/2022	05/19/2023	18.9	1401.6	19.2
	2 Corn	73	07/25/2023	10/24/2023	28.3	2117.0	29.0
Field: RW1							
	1 Wheat	34	12/22/2022	05/26/2023	21.9	731.0	21.5
	2 Corn	34	07/14/2023	10/13/2023	28.9	986.0	29.0
Field: RW2							
	1 Corn	58	05/11/2023	08/10/2023	25.8	1566.0	27.0
Field: RW3							
	1 Wheat	37	12/15/2022	05/19/2023	20.4	806.6	21.8
	2 Corn	37	07/14/2023	10/13/2023	29.5	1117.4	30.2
Field: RW4							
	1 Wheat	17	12/15/2022	05/19/2023	19.3	336.6	19.8
	2 Corn	17	07/07/2023	10/06/2023	30.0	516.8	30.4
Field: RW5							
	1 Wheat	77	12/15/2022	05/19/2023	18.4	1439.9	18.7
	2 Corn	77	07/25/2023	10/24/2023	30.1	2387.0	31.0
Field: RW6							
	1 Wheat	71	12/22/2022	05/26/2023	19.5	1391.6	19.6
	2 Corn	71	06/28/2023	09/27/2023	29.0	2122.9	29.9
Field: RW7							
	1 Wheat	24	12/15/2022	05/19/2023	19.6	463.2	19.3
	2 Corn	24	06/28/2023	09/27/2023	29.2	696.0	29.0
Field: WH1							
	1 Wheat	58	12/22/2022	05/26/2023	20.3	1191.9	20.6
	2 Corn	58	07/14/2023	10/13/2023	29.1	1786.4	30.8



**Richard Westra Dairy 2023**  
**Planting and Harvest Information (Attachment F)**

Crop #	Crop	Acres Planted	Plant Date	Harvest Date	Estimated Yield (tons)	Tons Harvested	Actual Yield
Field: WH2							
	1 Wheat	76	12/11/2022	05/19/2023	20.2	1558.0	20.5
	2 Corn	76	06/25/2023	10/24/2023	27.8	2128.0	28.0
Field: WH3							
	1 Wheat	65	12/15/2022	05/19/2023	19.1	1287.0	19.8
	2 Corn	65	07/04/2023	10/03/2023	30.7	2012.4	31.0
Field: WH4							
	1 Corn	49	05/11/2023	08/10/2023	28.9	1433.2	29.2



# Richard Westra Dairy 2023

## Weather Data (Attachment G)

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

\*Note: SWP = Standing Water Present





July 7, 2023

**Lab No.** : VI 2343954**Customer No.** : 4018573**Reference** : 40953

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

### Laboratory Report

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

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

### Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab No.	Matrix
RWDW	06/21/2023	06/21/2023	VI 2343954-001	DW
RWDE	06/21/2023	06/21/2023	VI 2343954-002	DW

### Sampling and Receipt Information:

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

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

### Test Summary

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

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

KD: EHB

Approved By **Kelly A. Dunnahoo, B.S.**  Digitally signed by Kelly A. Dunnahoo, B.S.  
 Title: Laboratory Director  
 Date: 2023-07-10

Section: Case Narrative

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July 7, 2023

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

Description : RWDW  
 Project : 0260 Richard Westra Dairy

Lab No. : VI 2343954-001  
 Customer No.: 4018573  
 Reference : 40953  
 Sampled On : June 21, 2023 at 13:55  
 Sampled By : Henry  
 Received On : June 21, 2023 at 16:12  
 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
<b>Dairy Analysis</b>													
Alkalinity (as CaCO <sub>3</sub> )	100	10	mg/L		1		06/27/2023	15:32	amm	SM 4500-H+B	06/28/2023	04:49	amm
Bicarbonate	120	10	mg/L		1		06/27/2023	15:32	amm	SM 4500-H+B	06/28/2023	04:49	amm
Carbonate	ND	10	mg/L		1	U	06/27/2023	15:32	amm	SM 4500-H+B	06/28/2023	04:49	amm
Hydroxide	ND	10	mg/L		1	U	06/27/2023	15:32	amm	SM 4500-H+B	06/28/2023	04:49	amm
Chloride	25	1	mg/L	500 <sup>2</sup>	1	1	06/22/2023	13:43	ldm	EPA 300.0	06/22/2023	21:28	ldm
Nitrate Nitrogen	13.1	0.1	mg/L	10	1		06/22/2023	13:43	ldm	EPA 300.0	06/22/2023	21:28	ldm
Conductivity	474	1	umhos/cm	1600 <sup>2</sup>	1		06/27/2023	15:32	amm	SM 4500-H+B	06/28/2023	04:49	amm
Sulfate Sulfur	18.1	0.17	mg/L		1		06/22/2023	13:43	ldm	EPA 300.0	06/22/2023	21:28	ldm
Solids, Total Dissolved (TDS)	290	20	mg/L	1000 <sup>2</sup>	1		06/23/2023	12:40	ctl	SM 2540 C	06/26/2023	11:45	ctl
Calcium	26	1	mg/L		1		06/25/2023	21:01	ejc	EPA 200.7	06/26/2023	18:58	ac
Magnesium	ND	1	mg/L		1	J	06/25/2023	21:01	ejc	EPA 200.7	06/26/2023	18:58	ac
Potassium	ND	1	mg/L		1	J	06/25/2023	21:01	ejc	EPA 200.7	06/26/2023	18:58	ac
Sodium	72	1	mg/L		1		06/25/2023	21:01	ejc	EPA 200.7	06/26/2023	18:58	ac

## DQF Flags Definition:

U Constituent results were non-detect.

l The MS/MSD did not meet QC criteria.

J Reported value is estimated; detected at a concentration below the RL and above the laboratory MDL.

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

MCL = Maximum Contamination Level. 2 - Secondary Standard. 3 - CDPH Notification Level. AL = Regulatory Action Level.



July 7, 2023

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

Description : RWDE  
 Project : 0260 Richard Westra Dairy

Lab No. : VI 2343954-002  
 Customer No.: 4018573  
 Reference : 40953  
 Sampled On : June 21, 2023 at 14:00  
 Sampled By : Henry  
 Received On : June 21, 2023 at 16:12  
 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
<b>Dairy Analysis</b>													
Alkalinity (as CaCO <sub>3</sub> )	60	10	mg/L		1		06/26/2023	16:44	amm	SM 4500-H+B	06/27/2023	02:27	amm
Bicarbonate	70	10	mg/L		1		06/26/2023	16:44	amm	SM 4500-H+B	06/27/2023	02:27	amm
Carbonate	ND	10	mg/L		1	U	06/26/2023	16:44	amm	SM 4500-H+B	06/27/2023	02:27	amm
Hydroxide	ND	10	mg/L		1	U	06/26/2023	16:44	amm	SM 4500-H+B	06/27/2023	02:27	amm
Chloride	19	1	mg/L	500 <sup>2</sup>	1	I	06/22/2023	13:43	ldm	EPA 300.0	06/22/2023	19:02	ldm
Nitrate Nitrogen	13.8	0.1	mg/L	10	1		06/22/2023	13:43	ldm	EPA 300.0	06/22/2023	19:02	ldm
Conductivity	369	1	umhos/cm	1600 <sup>2</sup>	1		06/26/2023	16:44	amm	SM 4500-H+B	06/27/2023	02:27	amm
Sulfate Sulfur	12.7	0.17	mg/L		1		06/22/2023	13:43	ldm	EPA 300.0	06/22/2023	19:02	ldm
Solids, Total Dissolved (TDS)	240	20	mg/L	1000 <sup>2</sup>	1		06/23/2023	12:40	ctl	SM 2540 C	06/26/2023	11:45	ctl
Calcium	16	1	mg/L		1		06/22/2023	22:49	ejc	EPA 200.7	06/23/2023	11:48	ac
Magnesium	ND	1	mg/L		1	U	06/22/2023	22:49	ejc	EPA 200.7	06/23/2023	11:48	ac
Potassium	ND	1	mg/L		1	U	06/22/2023	22:49	ejc	EPA 200.7	06/23/2023	11:48	ac
Sodium	56	1	mg/L		1		06/22/2023	22:49	ejc	EPA 200.7	06/23/2023	11:48	ac

## 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

MCL = Maximum Contamination Level. 2 - Secondary Standard. 3 - CDPH Notification Level. AL = Regulatory Action Level.

**Corporate Offices & Laboratory**

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July 7, 2023

**Innovative Ag Services, LLC**

Lab No. : VI 2343954

Customer No. : 4018573

**Quality Control - Metals**

<b>Constituent</b>	<b>Method</b>	<b>Date/ID</b>	<b>Type</b>	<b>Units</b>	<b>Conc.</b>	<b>QC Data</b>	<b>DQO</b>	<b>Note</b>
<b>Metals</b>								
Calcium	200.7	06/22/2023:206896EJC (STK2338115-001) (SP 2310519-001)	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 92.2% 191% 97.0% 7.7% 49.5% 61.4% 1.2%	<1 85-115 <¼ 75-125 ≤20.0 <¼ <1/4 ≤20.0	406 406
	200.7	06/25/2023:206983EJC (STK2338269-006) (STK2338269-003)	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 93.4% 91.8% 141% 6.0% 89.9% 68.4% 4.2%	<1 85-115 75-125 <1/4 ≤20.0 75-125 <1/4 ≤20.0	
Magnesium	200.7	06/22/2023:206896EJC (STK2338115-001) (SP 2310519-001)	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 102% 135% 96.0% 7.1% 81.4% 86.9% 1.3%	<1 85-115 <¼ 75-125 ≤20 75-125 75-125 ≤20	406
	200.7	06/25/2023:206983EJC (STK2338269-006) (STK2338269-003)	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 97.6% 92.1% 114% 6.5% 101% 93.9% 3.5%	<1 85-115 75-125 75-125 ≤20 75-125 75-125 ≤20	
Potassium	200.7	06/22/2023:206896EJC (STK2338115-001) (SP 2310519-001)	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 93.9% 135% 99.0% 6.8% 79.8% 85.7% 1.2%	<1 85-115 <¼ 75-125 ≤20.0 75-125 75-125 ≤20.0	406
	200.7	06/25/2023:206983EJC (STK2338269-006)	Blank LCS MS MSD MSRPD MS	mg/L mg/L mg/L mg/L mg/L mg/L	12.00 12.00 12.00 12.00 12.00 12.00	ND 94.6% 99.9% 107% 5.7% 103%	<1 85-115 75-125 75-125 ≤20.0 75-125	

July 7, 2023

**Innovative Ag Services, LLC**

Lab No. : VI 2343954  
 Customer No. : 4018573

**Quality Control - Metals**

<b>Constituent</b>	<b>Method</b>	<b>Date/ID</b>	<b>Type</b>	<b>Units</b>	<b>Conc.</b>	<b>QC Data</b>	<b>DQO</b>	<b>Note</b>
		(STK2338269-003)	MSD	mg/L	12.00	101%	75-125	
			MSRPD	mg/L		1.8%	≤20.0	
Sodium	200.7	06/22/2023:206896EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	96.6%	85-115	
			MS	mg/L	12.00	343%	<¼	406
		(STK2338115-001)	MSD	mg/L	12.00	95.4%	75-125	
			MSRPD	mg/L		8.1%	≤20.0	
			MS	mg/L	12.00	63.2%	<¼	406
		(SP 2310519-001)	MSD	mg/L	12.00	58.4%	<1/4	
			MSRPD	mg/L		0.5%	≤20.0	
	200.7	06/25/2023:206983EJC	Blank	mg/L		ND	<1	
			LCS	mg/L	12.00	97.9%	85-115	
			MS	mg/L	12.00	94.8%	75-125	
		(STK2338269-006)	MSD	mg/L	12.00	139%	<1/4	
			MSRPD	mg/L		5.9%	≤20.0	
			MS	mg/L	12.00	89.4%	75-125	
		(STK2338269-003)	MSD	mg/L	12.00	47.1%	<1/4	
			MSRPD	mg/L		5.2%	≤20.0	

**Definition**

- Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
- DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.
- LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
- MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
- MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of 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**

- 406 : Matrix Spike (MS) not within the Acceptance Range (AR) because of high analyte concentration in the sample. Data was accepted based on the LCS or CCV recovery.

July 7, 2023

**Innovative Ag Services, LLC**

Lab No. : VI 2343954  
 Customer No. : 4018573

**Quality Control - Wet Chem**

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Wet Chem</b>								
Alkalinity (as CaCO <sub>3</sub> )	2320B	06/26/2023:207047AMM	ND	mg/L		0.8%	10	406
	2320B	(VI 2343954-001)	Dup	mg/L		0.6%	10	
Bicarbonate	2320B	(VI 2343954-002)	Dup	mg/L		1%	10	
	2320B	(VI 2343954-001)	Dup	mg/L		0.6%	10	
E. C.	2320B	(VI 2343954-002)	Dup	umhos/cm		0.3%	5	
	2320B	(VI 2343954-001)	Dup	umhos/cm		0.4%	5	
Solids, Total Dissolved	2540CE	06/23/2023:206926CTL	Blank	mg/L		ND	<20	
		(SP 2310601-001)	LCS	mg/L	993.7	98.8%	90-110	
		(SP 2310601-001)	Dup	mg/L		1.33%	5	
			Dup	mg/L		1.20%	5	
Chloride	300.0	06/22/2023:206935LDM	Blank	mg/L		ND	<1	
		(VI 2343952-033)	LCS	mg/L	25.00	101 %	90-110	
			MS	mg/L	50.00	86.0 %	85-121	
			MSD	mg/L	50.00	83.4 %	85-121	435
			MSRPD	mg/L	10.00	1.3%	≤19	
		(VI 2343952-035)	MS	mg/L	50.00	92.9 %	85-121	
			MSD	mg/L	50.00	89.7 %	85-121	
			MSRPD	mg/L	10.00	2.0%	≤19	
Nitrate Nitrogen	300.0	06/22/2023:206935LDM	Blank	mg/L		ND	<0.4	
		(VI 2343952-033)	LCS	mg/L	20.00	102 %	90-110	
			MS	mg/L	40.00	103 %	85-119	
			MSD	mg/L	40.00	99.9 %	85-119	
			MSRPD	mg/L	10.00	3.3%	≤19	
		(VI 2343952-035)	MS	mg/L	40.00	103 %	85-119	
			MSD	mg/L	40.00	99.0 %	85-119	
			MSRPD	mg/L	10.00	3.7%	≤19	
Sulfate Sulfur	300.0	06/22/2023:206935LDM	Blank	mg/L		ND	<0.5	
		(VI 2343952-033)	LCS	mg/L	50.00	102 %	90-110	
			MS	mg/L	100.0	103 %	82-124	
			MSD	mg/L	100.0	99.4 %	82-124	
			MSRPD	mg/L	10.00	3.0%	≤23	
		(VI 2343952-035)	MS	mg/L	100.0	102 %	82-124	
			MSD	mg/L	100.0	98.4 %	82-124	
			MSRPD	mg/L	10.00	3.7%	≤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 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**

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

2343954

**Laboratory Analysis Work Order**

Nº 40953

ID: # 0260

SITE NAME: Richard Westra Dairy

Billing: JAS

R01  
15.3

LABORATORY: FGL

Authorized Copy Release to:

Innovative Ag Services LLC

(559) 587-2800

**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 RUDER	Dam	W4	1:55 6/21	Henry	—		
2 RUDER	1	1	2:00 6/21	1	—		
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:

GLS 6/22/23  
CDA 0934**CHAIN OF CUSTODY RECORDING**

Signature	Company	Received Date & Time	Relinquished Date & Time
1st [Signature]	JAS		2:00 6/21/23
2nd AJB	FGL	6/21/23 1555	
3rd AJB	FGL		6/21/23 1612
4th SRO	FGL	6/21/23 1612	

LABORATORY USE ONLY SRO

FGL GLS 6/21/23 161730

Logged In By: \_\_\_\_\_

Total Samples: 6/21/23 1730

Laboratory #: \_\_\_\_\_



October 19, 2023

Lab No. : VI 2346747

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

Customer No. : 4018573  
 Reference : 41463

### 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
WH2	10/04/2023	10/04/2023	VI 2346747-001	AGW

### Sampling and Receipt Information:

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

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

### Test Summary

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

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

KD: JRD

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.  
 Title: Laboratory Director  
 Date: 2023-10-20

Section: Case Narrative

Page 1 of 3

Page 1 of 3

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 Visalia, CA 93291  
 TEL: (559)734-9473  
 FAX: (559)734-8435  
 CA ELAP Certification No. 2810



October 19, 2023

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

Description : WH2  
 Project : 0260 Richard Westra Dairy

Lab No. : VI 2346747-001  
 Customer No.: 4018573  
 Reference : 41463  
 Sampled On : October 4, 2023 at 09:20  
 Sampled By : Zeke  
 Received On : October 4, 2023 at 16:17  
 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	10/16/2023	06:40	lcr	EPA 351.2	10/17/2023	17:09	lcr
Nitrate Nitrogen	5.8	0.4	mg/L		1		10/05/2023	16:25	lfs	SM 4500-NO3 F	10/05/2023	15:22	lfs
Nitrogen, Total as Nitrogen	5.8	0.5	mg/L		1	I	10/16/2023	06:40	lcr	Calc.	10/17/2023	17:09	lcr
Nitrate + Nitrite as N	5.8	0.4	mg/L		1		10/05/2023	16:25	lfs	SM 4500-NO3 F	10/05/2023	15:22	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	U1	10/16/2023	06:40	lcr	EPA 351.2	10/17/2023	17:09	lcr
Conductivity	280	1	umhos/cm		1	I	10/12/2023	08:04	krh	SM 4500-H+B	10/12/2023	11:36	krh
Solids, Total Dissolved (TDS)	200	20	mg/L		1		10/09/2023	09:40	ctl	SM 2540 C	10/10/2023	09:00	ctl

## DQF Flags Definition:

U Constituent results were non-detect.

I The MS/MSD did not meet QC criteria.

I The RPD for the laboratory duplicate exceeded laboratory criteria.

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



October 19, 2023

**Innovative Ag Services, LLC**

Lab No. : VI 2346747

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 2346626-002)	Dup	umhos/cm		55.0%	5	440
Solids, Total Dissolved	2540CE	10/09/2023:211328CTL (SP 2316848-001)	Blank LCS Dup	mg/L mg/L mg/L	991.5	ND 104% 1.67%	<20 90-110 5	
Nitrogen, Total Kjeldahl	351.2	10/16/2023:211697LCR (CH 2378341-001) (CH 2378341-002)	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 2.3% 12.00 12.00 2.9%	ND 89.7% 85.6% 87.6% 83.3% 79.3% ≤20	<0.5 73-124 90-110 90-110 90-110 90-110 ≤20	435 435 435 435
Nitrate + Nitrite as N	4500NO3F	10/05/2023:211212LFS (VI 2346732-001)	Blank LCS MS MSD MSRPD	mg/L mg/L mg/L mg/L mg/L	11.22 5.609 5.609 5.609 0.7%	ND 98.4% 90.2% 92.0% 0.7%	<0.4 80-120 66-125 66-125 ≤30.4	
Nitrate Nitrogen	4500NO3F	10/05/2023:211212LFS (VI 2346732-001)	Blank LCS MS MSD MSRPD	mg/L mg/L mg/L mg/L mg/L	11.22 5.609 5.609 5.609 0.7%	ND 98.4% 90.2% 92.0% 0.7%	<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.

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



# Laboratory Analysis Work Order

Nº 41463

ID: # 0260

2346747

SITE NAME: RICHARD WESTRABilling: 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: \_\_\_\_\_

20/14.10.2021

**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 W42	IRR	W2	10/4 / 9:20	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>	<u>S</u>	<u>IAS</u>		10-4-23 / 1:55
2 <sup>nd</sup>	<u>AJB</u>	<u>FGL</u>	10/4/23 1602	
3 <sup>rd</sup>	<u>AJB</u>	<u>FGL</u>		10/4/23 1611
4 <sup>th</sup>	<u>ADT</u>		10/4/23 1617	

LABORATORY USE ONLY

Logged In By: GJTotal Samples: 1128Laboratory #: TP

GLS Inc 10/5/23 1128



October 30, 2023

**Lab No.** : VI 2346864**Customer No.** : 4018573**Reference** : 41519

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

### Laboratory Report

**Introduction:** This report package contains a total of 5 pages divided into 3 sections:

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

### Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab No.	Matrix
RW4	10/10/2023	10/10/2023	VI 2346864-001	AGW

### Sampling and Receipt Information:

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

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

### Test Summary

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

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

KD: EHB

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.  
 Title: Laboratory Director  
 Date: 2023-10-30

Section: Case Narrative

Page 1 of 5

Page 1 of 5

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 CA ELAP Certification No. 2810



October 30, 2023

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

Description : RW4  
 Project : 0260 Richard Westra Dairy

Lab No. : VI 2346864-001  
 Customer No.: 4018573  
 Reference : 41519  
 Sampled On : October 10, 2023 at 14:10  
 Sampled By : Zeke  
 Received On : October 10, 2023 at 16:13  
 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>													
Alkalinity (as CaCO <sub>3</sub> )	90	10	mg/L		1		10/11/2023	18:16	amm	SM 4500-H+B	10/12/2023	00:28	amm
Bicarbonate	110	10	mg/L		1		10/11/2023	18:16	amm	SM 4500-H+B	10/12/2023	00:28	amm
Carbonate	ND	10	mg/L		1	U	10/11/2023	18:16	amm	SM 4500-H+B	10/12/2023	00:28	amm
Hydroxide	ND	10	mg/L		1	U	10/11/2023	18:16	amm	SM 4500-H+B	10/12/2023	00:28	amm
Chloride	34	1	mg/L		1		10/11/2023	14:08	ldm	EPA 300.0	10/12/2023	06:37	ldm
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	U1	10/20/2023	11:25	sta	EPA 351.2	10/26/2023	19:33	lcr
Nitrate Nitrogen	11.0	0.1	mg/L		1		10/11/2023	14:08	ldm	EPA 300.0	10/12/2023	06:37	ldm
Nitrogen, Total as Nitrogen	11.0	0.5	mg/L		1	1	10/20/2023	11:25	sta	Calc.	10/26/2023	19:33	lcr
Nitrate + Nitrite as N	11.0	0.1	mg/L		1		10/11/2023	14:08	ldm	EPA 300.0	10/12/2023	06:37	ldm
Kjeldahl Nitrogen	ND	0.5	mg/L		1	U1	10/20/2023	11:25	sta	EPA 351.2	10/26/2023	19:33	lcr
Conductivity	482	1	umhos/cm		1		10/11/2023	18:16	amm	SM 4500-H+B	10/12/2023	00:28	amm
Sulfate Sulfur	15.0	0.17	mg/L		1		10/11/2023	14:08	ldm	EPA 300.0	10/12/2023	06:37	ldm
Solids, Total Dissolved (TDS)	310	20	mg/L		1		10/13/2023	11:05	ctl	SM 2540 C	10/16/2023	11:00	ctl
Calcium	43	1	mg/L		1		10/17/2023	07:45	ejc	EPA 200.7	10/23/2023	10:39	ac
Magnesium	ND	1	mg/L		1	U	10/17/2023	07:45	ejc	EPA 200.7	10/23/2023	10:39	ac
Sodium	54	1	mg/L		1		10/17/2023	07:45	ejc	EPA 200.7	10/23/2023	10:39	ac

## DQF Flags Definition:

U Constituent results were non-detect.

1 The MS/MSD did not meet QC criteria.

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



October 30, 2023

**Innovative Ag Services, LLC**

Lab No. : VI 2346864

Customer No. : 4018573

**Quality Control - Metals**

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Metals</b>								
Calcium	200.7	10/17/2023:211718EJC	Blank	mg/L		ND	<1	
		(CH 2378614-003)	LCS	mg/L	12.00	107%	85-115	
			MS	mg/L	12.00	96.4%	75-125	
			MSD	mg/L	12.00	111%	75-125	
			MSRPD	mg/L		8.6%	≤20.0	
		(CC 2383622-001)	MS	mg/L	12.00	-9.33%	<1/4	406
			MSD	mg/L	12.00	89.9%	75-125	
			MSRPD	mg/L		5.6%	≤20.0	
Magnesium	200.7	10/17/2023:211718EJC	Blank	mg/L		ND	<1	
		(CH 2378614-003)	LCS	mg/L	12.00	110%	85-115	
			MS	mg/L	12.00	103%	75-125	
			MSD	mg/L	12.00	114%	75-125	
			MSRPD	mg/L		8.4%	≤20	
		(CC 2383622-001)	MS	mg/L	12.00	31.8%	<1/4	406
			MSD	mg/L	12.00	100%	75-125	
			MSRPD	mg/L		6.1%	≤20	
Sodium	200.7	10/17/2023:211718EJC	Blank	mg/L		ND	<1	
		(CH 2378614-003)	LCS	mg/L	12.00	107%	85-115	
			MS	mg/L	12.00	100%	75-125	
			MSD	mg/L	12.00	111%	75-125	
			MSRPD	mg/L		7.7%	≤20.0	
		(CC 2383622-001)	MS	mg/L	12.00	-63.9%	<1/4	406
			MSD	mg/L	12.00	52.3%	<1/4	
			MSRPD	mg/L		5.3%	≤20.0	

**Definition**

- Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
- DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.
- LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
- MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
- MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of 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**

- 406 : Matrix Spike (MS) not within the Acceptance Range (AR) because of high analyte concentration in the sample. Data was accepted based on the LCS or CCV recovery.

October 30, 2023

**Innovative Ag Services, LLC**

Lab No. : VI 2346864

Customer No. : 4018573

**Quality Control - Wet Chem**

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Wet Chem</b>								
Alkalinity (as CaCO3)	2320B	10/11/2023:211482AMM	ND	mg/L		1.58%	10	406
Bicarbonate	2320B	(SP 2316862-005)	Dup	mg/L		1.59%	10	
E. C.	2320B	(SP 2316862-005)	Dup	umhos/cm		0.7%	5	
Solids, Total Dissolved	2540CE	10/13/2023:211549CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	99.3%	90-110	
		(SP 2317153-001)	Dup	mg/L		0.2%	5	
		(SP 2317153-001)	Dup	mg/L		1.11%	5	
Chloride	300.0	10/11/2023:211629LDM	Blank	mg/L		ND	<1	
			LCS	mg/L	25.00	101%	90-110	
			MS	mg/L	50.00	88.9%	67-117	
		(CC 2383571-002)	MSD	mg/L	50.00	89.7%	67-117	
			MSRPD	mg/L		0.5%	≤7	
			MS	mg/L	50.00	100%	67-117	
		(CH 2378736-001)	MSD	mg/L	50.00	101%	67-117	
			MSRPD	mg/L		0.7%	≤7	
Nitrate + Nitrite as N	300.0	10/11/2023:211629LDM	Blank	mg/L		ND	<0.4	
			LCS	mg/L	20.00	100%	90-110	
			MS	mg/L	40.00	86.0%	86-112	
		(CC 2383571-002)	MSD	mg/L	40.00	86.7%	86-112	
			MSRPD	mg/L		0.4%	≤7	
			MS	mg/L	40.00	101%	86-112	
		(CH 2378736-001)	MSD	mg/L	40.00	102%	86-112	
			MSRPD	mg/L		0.7%	≤7	
Nitrate Nitrogen	300.0	10/11/2023:211629LDM	Blank	mg/L		ND	<0.4	
			LCS	mg/L	20.00	100%	90-110	
			MS	mg/L	40.00	86.0%	86-112	
		(CC 2383571-002)	MSD	mg/L	40.00	86.7%	86-112	
			MSRPD	mg/L		0.4%	≤7	
			MS	mg/L	40.00	101%	86-112	
		(CH 2378736-001)	MSD	mg/L	40.00	102%	86-112	
			MSRPD	mg/L		0.7%	≤7	
Sulfate Sulfur	300.0	10/11/2023:211629LDM	Blank	mg/L		ND	<0.5	
			LCS	mg/L	50.00	101%	90-110	
			MS	mg/L	100.0	99.9%	18-165	
		(CC 2383571-002)	MSD	mg/L	100.0	100%	18-165	
			MSRPD	mg/L		0.5%	≤7	
			MS	mg/L	100.0	101%	18-165	
		(CH 2378736-001)	MSD	mg/L	100.0	101%	18-165	
			MSRPD	mg/L		0.7%	≤7	
Nitrogen, Total Kjeldahl	351.2	10/20/2023:211875STA	Blank	mg/L		ND	<0.5	
			LCS	mg/L	12.00	90.8%	73-124	
			MS	mg/L	12.00	70.2%	<1/4	406
		(VI 2346838-002)	MSD	mg/L	12.00	69.2%	<1/4	
			MSRPD	mg/L		1.4%	≤20	
			MS	mg/L	12.00	83.6%	90-110	435
		(VI 2346838-003)	MSD	mg/L	12.00	76.6%	90-110	435
			MSRPD	mg/L		8.6%	≤20	

**Definition**

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

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

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

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

MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of 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**

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

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



# Laboratory Analysis Work Order

Nº 41519

ID: # 0260

12.2°C  
ID#TH407

23410863

LABORATORY: FGL

SITE NAME: RICHARD WESTON DAIRY

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	IAS USE ONLY: FIELD TESTS		
					NH <sub>3</sub> N *	pH	Temp
1 RW4	IAS	WS	10-10/ 2:10	Zake			
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>R</i>	IAS		10-10-23 / 7:25
2 <sup>nd</sup>	<i>AJB</i>	FGL	10/10/23 1559	
3 <sup>rd</sup>	<i>AJB</i>	FGL		10/10/23 1613
4 <sup>th</sup>		FGL	10-10-2023 1603	

LABORATORY USE ONLY  
 Rec'd GLS 10-10-2023 1730 Total Samples: \_\_\_\_\_ Laboratory #: \_\_\_\_\_

JKW 10/10/23 16:13



January 2, 2024

**Lab No.** : VI 2348584**Customer No.** : 4018573**Reference** : 42191

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

### 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
RWD1	12/15/2023	12/15/2023	VI 2348584-001	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)
SM 4500-NO3 F	Preparation and analysis performed by FGL-Santa Paula (FGL-SP ELAP# 1573)

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

KD: JRD

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

Section: Case Narrative

Page 1 of 4

Page 1 of 4

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 TEL: (559)734-8473  
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 CA ELAP Certification No. 2810



January 2, 2024

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

Description : RWD1  
 Project : 0260 Richard Westra Dairy

Lab No. : VI 2348584-001  
 Customer No.: 4018573  
 Reference : 42191  
 Sampled On : December 15, 2023 at 09:40  
 Sampled By : Zeke  
 Received On : December 15, 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
<b>Dairy Analysis</b>													
Alkalinity (as CaCO <sub>3</sub> )	40	10	mg/L		1		12/25/2023	21:20	amm	SM 4500-H+B	12/26/2023	01:02	amm
Bicarbonate	50	10	mg/L		1		12/25/2023	21:20	amm	SM 4500-H+B	12/26/2023	01:02	amm
Carbonate	ND	10	mg/L		1	U	12/25/2023	21:20	amm	SM 4500-H+B	12/26/2023	01:02	amm
Hydroxide	ND	10	mg/L		1	U	12/25/2023	21:20	amm	SM 4500-H+B	12/26/2023	01:02	amm
Chloride	27	1	mg/L	500 <sup>2</sup>	1		12/24/2023	07:23	ldm	EPA 300.0	12/24/2023	09:41	ldm
Nitrate Nitrogen	16.0	0.4	mg/L	10	1		12/22/2023	08:00	lfs	SM 4500-NO <sub>3</sub> F	12/22/2023	11:00	lfs
Conductivity	384	1	umhos/cm	1600 <sup>2</sup>	1		12/25/2023	21:20	amm	SM 4500-H+B	12/26/2023	01:02	amm
Sulfate Sulfur	12.9	0.17	mg/L		1		12/24/2023	07:23	ldm	EPA 300.0	12/24/2023	09:41	ldm
Solids, Total Dissolved (TDS)	250	20	mg/L	1000 <sup>2</sup>	1		12/19/2023	10:30	ctl	SM 2540 C	12/20/2023	11:00	ctl
Calcium	18	1	mg/L		1	h	12/20/2023	07:00	ac	EPA 200.7	12/20/2023	19:38	ac
Magnesium	ND	1	mg/L		1	U	12/20/2023	07:00	ac	EPA 200.7	12/20/2023	19:38	ac
Potassium	ND	1	mg/L		1	U	12/20/2023	07:00	ac	EPA 200.7	12/20/2023	19:38	ac
Sodium	66	1	mg/L		1	hl	12/20/2023	07:00	ac	EPA 200.7	12/20/2023	19:38	ac

## DQF Flags Definition:

U Constituent results were non-detect.

h The MS/MSD did not meet QC criteria.

l The MS/MSD did not meet QC criteria.

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

MCL = Maximum Contamination Level. 2 - Secondary Standard. 3 - CDPH Notification Level. AL = Regulatory Action Level.



January 2, 2024

**Innovative Ag Services, LLC**

Lab No. : VI 2348584

Customer No. : 4018573

**Quality Control - Metals**

<b>Constituent</b>	<b>Method</b>	<b>Date/ID</b>	<b>Type</b>	<b>Units</b>	<b>Conc.</b>	<b>QC Data</b>	<b>DQO</b>	<b>Note</b>
<b>Metals</b>								
Calcium	200.7	12/20/2023:214322AC	Blank	mg/L		ND	<1	
		(VI 2348243-001)	LCS	mg/L	12.00	102%	85-115	
			MS	mg/L	12.00	135%	<¼	406
			MSD	mg/L	12.00	108%	75-125	
			MSRPD	mg/L		4.0%	≤20.0	
		(VI 2348281-001)	MS	mg/L	12.00	153%	75-125	435
			MSD	mg/L	12.00	88.7%	75-125	
			MSRPD	mg/L		15.2%	≤20.0	
Magnesium	200.7	12/20/2023:214322AC	Blank	mg/L		ND	<1	
		(VI 2348243-001)	LCS	mg/L	12.00	98.7%	85-115	
			MS	mg/L	12.00	102%	75-125	
			MSD	mg/L	12.00	95.7%	75-125	
			MSRPD	mg/L		5.1%	≤20	
		(VI 2348281-001)	MS	mg/L	12.00	114%	75-125	
			MSD	mg/L	12.00	104%	75-125	
			MSRPD	mg/L		6.0%	≤20	
Potassium	200.7	12/20/2023:214322AC	Blank	mg/L		ND	<1	
		(VI 2348243-001)	LCS	mg/L	12.00	101%	85-115	
			MS	mg/L	12.00	105%	75-125	
			MSD	mg/L	12.00	100%	75-125	
			MSRPD	mg/L		4.9%	≤20.0	
		(VI 2348281-001)	MS	mg/L	12.00	111%	75-125	
			MSD	mg/L	12.00	104%	75-125	
			MSRPD	mg/L		5.0%	≤20.0	
Sodium	200.7	12/20/2023:214322AC	Blank	mg/L		ND	<1	
		(VI 2348243-001)	LCS	mg/L	12.00	95.8%	85-115	
			MS	mg/L	12.00	130%	<¼	406
			MSD	mg/L	12.00	91.8%	75-125	
			MSRPD	mg/L		4.4%	≤20.0	
		(VI 2348281-001)	MS	mg/L	12.00	154%	75-125	435
			MSD	mg/L	12.00	69.1%	75-125	435
			MSRPD	mg/L		18.5%	≤20.0	

**Definition**

- Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
- DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.
- LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
- MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
- MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of 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**

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

January 2, 2024  
**Innovative Ag Services, LLC**

Lab No. : VI 2348584  
Customer No. : 4018573

### Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Wet Chem</b>								
Alkalinity (as CaCO <sub>3</sub> )	2320B	(CH 2390727-001)	Dup	mg/L		3.47%	10	
Bicarbonate	2320B	(CH 2390727-001)	Dup	mg/L		3.42%	10	
E. C.	2320B	(CH 2390727-001)	Dup	umhos/cm		1.11%	5	
Solids, Total Dissolved	2540CE	12/19/2023:214272CTL  (VI 2348588-001) (VI 2348588-001)	Blank LCS Dup Dup	mg/L mg/L mg/L mg/L	991.5	ND 101% 0.6% 0.2%	<20 90-110 5 5	
Chloride	300.0	12/24/2023:214487LDM  (VI 2348584-001)  (VI 2348738-001)	Blank LCS MS MSD MSRPD MS MSD MSRPD	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	25.00 50.00 50.00 50.00 0.0% 50.00 50.00 0.1%	ND 98.3% 91.9% 92.0% ≤7 101% 101% ≤7	<1 90-110 67-117 67-117 67-117 67-117 67-117 ≤7	
Sulfate Sulfur	300.0	12/24/2023:214487LDM  (VI 2348584-001)  (VI 2348738-001)	Blank LCS MS MSD MSRPD MS MSD MSRPD	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	50.00 100.0 100.0 100.0 0.1% 100.0 100.0 0.1%	ND 99.5% 95.0% 95.1% ≤7 101% 102% ≤7	<0.5 90-110 18-165 18-165 18-165 18-165 18-165 ≤7	
Nitrate Nitrogen	4500NO3F	12/22/2023:214459LFS  (VI 2348586-001)	Blank LCS MS MSD MSRPD	mg/L mg/L mg/L mg/L mg/L	11.22 5.609 5.609 5.609 0.9%	ND 97.8% 83.6% 86.7% ≤30.4	<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.
- 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.



# Laboratory Analysis Work Order

No 42191

ID: # 0260

2348584

LABORATORY: FGL

SITE NAME: Richard Wustra Dairy

Billing: JAS

## 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: \_\_\_\_\_

Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8

### 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 RWD1	Dom	W4	12-15 / 9:40	Zake			
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:

12/16/23  
1359

### CHAIN OF CUSTODY RECORDING

	Signature	Company	Received Date & Time	Relinquished Date & Time
1 <sup>st</sup>		JAS		12-15-23 / 2:25
2 <sup>nd</sup>	AJB	FGL	12/15/23 1535	
3 <sup>rd</sup>	AJB	FGL		12/15/23 1601
4 <sup>th</sup>			12/15/23 1601	

LABORATORY USE ONLY

Logged In By:

↓ Total Samples: 12/15/23

12/15/23 Laboratory #: \_\_\_\_\_



January 4, 2024

**Lab No.** : VI 2348751

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

**Customer No.** : 4018573  
**Reference** : 42216

## 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
WHD1	12/20/2023	12/20/2023	VI 2348751-001	DW

## Sampling and Receipt Information:

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

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

## Test Summary

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

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

KD: JRD

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.  
 Title: Laboratory Director  
 Date: 2024-01-04

Section: Case Narrative

Page 1 of 4

Page 1 of 4

<b>Corporate Offices &amp; Laboratory</b> 853 Corporation Street Santa Paula, CA 93060 TEL: (805)392-2000 Env FAX: (805)525-4172 / Ag FAX: (805)392-2063 CA ELAP Certification No. 1573	<b>Office &amp; Laboratory</b> 2500 Stagecoach Road Stockton, CA 95215 TEL: (209)942-0182 FAX: (209)942-0423	<b>Office &amp; Laboratory</b> 563 E. Lindo Avenue Chico, CA 95926 TEL: (530)343-5818 FAX: (530)343-3807	<b>Office &amp; Laboratory</b> 3442 Empress Drive, Suite D San Luis Obispo, CA 93401 TEL: (805)783-2940 FAX: (805)783-2912	<b>Office &amp; Laboratory</b> 9415 W. Goshen Avenue Visalia, CA 93291 TEL: (559)734-9473 FAX: (559)734-8435
		CA ELAP Certification No. 1563	CA ELAP Certification No. 2670	CA ELAP Certification No. 2775



January 4, 2024

**Innovative Ag Services, LLC**

1201 Delta View Road  
Suite 5  
Hanford, CA 93230

Description : WHD1

Project : 0260 Richard Westra Dairy

Lab No. : VI 2348751-001

Customer No.: 4018573

Reference : 42216

Sampled On : December 20, 2023 at 11:35

Sampled By : Alex

Received On : December 20, 2023 at 16:04

Matrix : Drinking Water

**Sample Results - Inorganic**

Constituent	Result	RL	Units	MCL/AL	Dil.	DQF	Sample Preparation			Sample Analysis			
							Date	Time	Who	Method	Date	Time	Who
<b>Dairy Analysis</b>													
Alkalinity (as CaCO <sub>3</sub> )	80	10	mg/L		1		12/27/2023	20:13	amm	SM 4500-H+B	12/28/2023	00:27	amm
Bicarbonate	90	10	mg/L		1		12/27/2023	20:13	amm	SM 4500-H+B	12/28/2023	00:27	amm
Carbonate	ND	10	mg/L		1	U	12/27/2023	20:13	amm	SM 4500-H+B	12/28/2023	00:27	amm
Hydroxide	ND	10	mg/L		1	U	12/27/2023	20:13	amm	SM 4500-H+B	12/28/2023	00:27	amm
Chloride	14	1	mg/L	500 <sup>2</sup>	1		12/21/2023	11:42	ldm	EPA 300.0	12/21/2023	18:04	ldm
Nitrate Nitrogen	12	0.1	mg/L	10	1		12/21/2023	11:42	ldm	EPA 300.0	12/21/2023	18:04	ldm
Conductivity	361	1	umhos/cm	1600 <sup>2</sup>	1		12/27/2023	20:13	amm	SM 4500-H+B	12/28/2023	00:27	amm
Sulfate Sulfur	12.0	0.17	mg/L		1		12/21/2023	11:42	ldm	EPA 300.0	12/21/2023	18:04	ldm
Solids, Total Dissolved (TDS)	250	20	mg/L	1000 <sup>2</sup>	1		12/22/2023	11:00	ctl	SM 2540 C	12/26/2023	11:00	ctl
Calcium	35	1	mg/L		1		12/22/2023	06:00	ac	EPA 200.7	12/23/2023	19:07	ac
Magnesium	1	1	mg/L		1		12/22/2023	06:00	ac	EPA 200.7	12/23/2023	19:07	ac
Potassium	ND	1	mg/L		1	U	12/22/2023	06:00	ac	EPA 200.7	12/23/2023	19:07	ac
Sodium	40	1	mg/L		1		12/22/2023	06:00	ac	EPA 200.7	12/23/2023	19:07	ac

DQF Flags Definition:

U Constituent results were non-detect.

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

MCL = Maximum Contamination Level. 2 - Secondary Standard. 3 - CDPH Notification Level. AL = Regulatory Action Level.



January 4, 2024

**Innovative Ag Services, LLC**

Lab No. : VI 2348751

Customer No. : 4018573

**Quality Control - Metals**

<b>Constituent</b>	<b>Method</b>	<b>Date/ID</b>	<b>Type</b>	<b>Units</b>	<b>Conc.</b>	<b>QC Data</b>	<b>DQO</b>	<b>Note</b>
<b>Metals</b>								
Calcium	200.7	12/22/2023:214432AC	Blank	mg/L		ND	<1	
		(SP 2320933-001)	LCS	mg/L	12.00	101%	85-115	
			MS	mg/L	12.00	113%	75-125	
			MSD	mg/L	12.00	-152%	<1/4	
			MSRPD	mg/L		2.5%	≤20.0	
		(SP 2320933-002)	MS	mg/L	12.00	-1230%	<1/4	406
			MSD	mg/L	12.00	-1090%	<1/4	
			MSRPD	mg/L		1.5%	≤20.0	
Magnesium	200.7	12/22/2023:214432AC	Blank	mg/L		ND	<1	
		(SP 2320933-001)	LCS	mg/L	12.00	95.4%	85-115	
			MS	mg/L	12.00	809%	<1/4	406
			MSD	mg/L	12.00	744%	<1/4	
			MSRPD	mg/L		2.3%	≤20	
		(SP 2320933-002)	MS	mg/L	12.00	-358%	<1/4	406
			MSD	mg/L	12.00	-269%	<1/4	
			MSRPD	mg/L		3.1%	≤20	
Potassium	200.7	12/22/2023:214432AC	Blank	mg/L		ND	<1	
		(SP 2320933-001)	LCS	mg/L	12.00	99.6%	85-115	
			MS	mg/L	12.00	103%	75-125	
			MSD	mg/L	12.00	106%	75-125	
			MSRPD	mg/L		0.8%	≤20.0	
		(SP 2320933-002)	MS	mg/L	12.00	90.4%	75-125	
			MSD	mg/L	12.00	100%	75-125	
			MSRPD	mg/L		3.7%	≤20.0	
Sodium	200.7	12/22/2023:214432AC	Blank	mg/L		ND	<1	
		(SP 2320933-001)	LCS	mg/L	12.00	102%	85-115	
			MS	mg/L	12.00	41.7%	<1/4	406
			MSD	mg/L	12.00	-180%	<1/4	
			MSRPD	mg/L		2.7%	≤20.0	
		(SP 2320933-002)	MS	mg/L	12.00	-976%	<1/4	406
			MSD	mg/L	12.00	-804%	<1/4	
			MSRPD	mg/L		2.4%	≤20.0	

**Definition**

- Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
- DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.
- LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
- MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
- MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of 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**

- 406 : Matrix Spike (MS) not within the Acceptance Range (AR) because of high analyte concentration in the sample. Data was accepted based on the LCS or CCV recovery.

January 4, 2024  
**Innovative Ag Services, LLC**

Lab No. : VI 2348751  
Customer No. : 4018573

### Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Wet Chem</b>								
Alkalinity (as CaCO <sub>3</sub> )	2320B	(SP 2320955-002)	Dup	mg/L		1.50%	10	
Bicarbonate	2320B	(SP 2320955-002)	Dup	mg/L		1.51%	10	
E. C.	2320B	(SP 2320955-002)	Dup	umhos/cm		0.1%	5	
Solids, Total Dissolved	2540CE	12/22/2023:214452CTL  (VI 2348755-001) (VI 2348755-001)	Blank LCS Dup Dup	mg/L mg/L mg/L mg/L	991.5	ND 101% 0.08% 0.8%	<20 90-110 5 5	
Chloride	300.0	12/21/2023:214427LDM  (SP 2320887-001)  (STK2356641-006)	Blank LCS MS MSD MSRPD MS MSD MSRPD	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	25.00 50.00 50.00 50.00 50.00 50.00 50.00 50.00	ND 98.7% 98.5% 98.5% 0.0% 98.8% 99.0% 0.2%	<1 90-110 67-117 67-117 ≤7 67-117 67-117 ≤7	
Nitrate Nitrogen	300.0	12/21/2023:214427LDM  (SP 2320887-001)  (STK2356641-006)	Blank LCS MS MSD MSRPD MS MSD MSRPD	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	20.00 40.00 40.00 40.00 40.00 40.00 40.00 40.00	ND 98.5% 99.6% 99.6% 0.0% 101% 101% 0.1%	<0.4 90-110 86-112 86-112 ≤7 86-112 86-112 ≤7	
Sulfate Sulfur	300.0	12/21/2023:214427LDM  (SP 2320887-001)  (STK2356641-006)	Blank LCS MS MSD MSRPD MS MSD MSRPD	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	50.00 100.0 100.0 100.0 100.0 100.0 100.0 100.0	ND 99.9% 98.6% 98.7% 0.0% 101% 101% 0.2%	<0.5 90-110 18-165 18-165 ≤7 18-165 18-165 ≤7	

#### Definition

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



# Laboratory Analysis Work Order

Nº 42216

ID: # 0260

2348751

LABORATORY: FGL

SITE NAME: Richard Westra Dairy

Billing: IAS

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

- W1 EC, NO<sub>3</sub>N (Dom) *201 17.50 12/20 11:35*  
 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 WHDI	Dom	W4	12/20 11:35	Alex	~		
2							
3							
4							
5							
6							
7							
8							

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

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

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

**CHAIN OF CUSTODY RECORDING**

	Signature	Company	Received Date & Time	Relinquished Date & Time
1 <sup>st</sup>	Abbie R	IAS		12/20/23 3:17
2 <sup>nd</sup>	AB	FGL	12/20/23 1532	
3 <sup>rd</sup>	AB	FGL		12/20/23 1604
4 <sup>th</sup>			12/20/23 1609	
LABORATORY USE ONLY				
Logged In By:	GJ	J	12/20/23 7:17	Laboratory #: GJ 12/20/23 7:17 PW