INNOVATIVE
AG SERVICES

Backroad Ranch

2023 Annual Report

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

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

(See attached delivery confirmation)

Annual Report

Backroad Ranch 2023

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

Facility Information:

Name of Dairy	Backroad Ranch
Facility Address	22000 Road 28, Tulare CA 93274

Owner/Operator as of 12/31/2023

Operator Name	Joseph Bakker
Operator Phone	(559) 901-1813
Owner Name	David Bakker
Owner Phone	(559) 901-1812

1. Beginning and end dates of the annual reporting period: crops harvested January 1, 2023 through December 31, 2023.

2. Maximum and average number and type of animals (see Attachment A).

3. Estimated amount of total manure and process wastewater generated by the facility (see Attachment A).

4. Estimated amount of total manure and process wastewater applied to each land application area (see Attachment B).

5. Quantified ratio of total nitrogen applied to land application areas and total nitrogen removed by crop harvest (see Attachment B).

6. Estimated amount of total manure and process wastewater transferred to other persons by the facility (see Attachment C).

7. Total number of acres and the Assessor Parcel Numbers for all land application areas that were not used for application of manure or process wastewater (see Attachment D).

8. Total number of acres and the Assessor Parcel Numbers for all land application areas that were used for land application of manure and process wastewater (see Attachment D).

9. Summary of manure and process wastewater discharges from the production area
Provide a summary of all manure and wastewater discharges from the production area to surface water or to land areas (land application areas or otherwise) when not in accordance with the facility's Nutrient Management Plan, that occurred during the annual reporting period, including the date, time, location, approximate volume, a map showing discharge and sample locations, rationale for sample locations, and method of measuring discharge flows:

X No discharges occurred during the reporting period.

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

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

X No discharges occurred during the reporting period.

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

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

X No discharges occurred during the reporting period.

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

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

__ No.

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

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

X No.

__ Yes, see attached manifests.

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

X Not applicable; no written agreements.

__ No changes in agreement(s).

__ Yes, a new or revised agreement is attached.

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

X Not Applicable.

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

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

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17. Record-Keeping Results

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

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

18. Groundwater Monitoring Section

X Groundwater monitoring results are attached.

__ Monitoring Well results are attached, if applicable.

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

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

19. Storm Water Reporting Section

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

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

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

20. Mortality Management Practices

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

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CENTRAL VALLEY REGION

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

DocuSigned by: Joseph Bakker 1172117675C34CZ...	David Bakker
Signature of Operator of Facility	Signature of Owner of Facility
Joseph Bakker	David Bakker
Print Name	Print Name
6/19/2024	6/25/24
Title and Date	Title and Date

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Backroad Ranch 2023

Estimated Manure and Nutrients Generated (Attachment A)

Animal Type	Maximum No. of Head	Average No. of Head*	Housing Type	Weight	Total Manure Produced (tons/year)	NITROGEN Net (LB) Available for Land Application	PHOSPHORUS Net (LB) Available for Land Application	POTASSIUM Net (LB) Available for Land Application	SALTS Net (LB) Available for Land Application
Jer Milk Cows	945	910	Milk Flushed Lane	1,000	21,160.68	235,826.50	39,858.00	53,144.00	428,473.50
Jer Milk Cows	806	797	Milk Freestall - SB	1,000	18,533.03	206,542.55	34,908.60	46,544.80	375,267.45
Jer Dry Cows	250	244	Flushed	1,450	3,560.48	32,061.60	4,453.00	21,374.40	44,530.00
Jer Heifers (15-24)	265	256	Flushed	1,000	2,672.26	35,507.20	5,606.40	16,819.20	66,342.40
	2,266	**2,207**			**45,926.45**	**509,937.85**	**84,826.00**	**137,882.40**	**914,613.35**

* 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)**
42,970,322	347.25	44.32	338.20	3,057.50	124,295.63	15,865.81	121,056.25	1,094,410.0

* The average Total Kjeldahl Nitrogen, Total Phosphorus, Total Potassium, and Total Salt concentrations are based on an average of all process wastewater sample results for the year.
** The total pounds of Nitrogen, Phosphorus, Potassium and Total Dissolved Solids generated = Average Concentration (mg/L) X Total Gallons of Wastewater Generated X 8.33 X 0.000001.
*** The total gallons of process wastewater generated is calculated as the total gallons of process wastewater applied to all land application areas (Attachment B) plus the total gallons of process wastewater transferred offsite (Attachment C).

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Nutrient Applications (Attachment B)

Field Name: BR1

Sudan, 39 Acres Planted on 09/11/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			546				
08/25/2023	Corral Solids: Main Corral	7.00	Tons	41.50	1.49	0.67	2.96	%	273		4,759	2,140	9,454	0	
09/23/2023	Ground Water: Well Avg	5.61	Acre Inches		12.02			mg/L			595	0	0	14,352	
09/23/2023	Waste Water: Main Lagoon	0.96	Acre Inches		375.00	62.80	476.00	mg/L		1,016,657	3,176	532	4,031	34,129	
10/08/2023	Ground Water: Well Avg	7.05	Acre Inches		12.02			mg/L			748	0	0	18,036	
10/23/2023	Ground Water: Well Avg	5.75	Acre Inches		12.02			mg/L			610	0	0	14,710	
10/23/2023	Waste Water: Main Lagoon	0.98	Acre Inches		375.00	62.80	476.00	mg/L		1,037,837	3,242	543	4,115	34,840	
11/06/2023	Ground Water: Well Avg	7.21	Acre Inches		12.02			mg/L			765	0	0	18,445	
11/20/2023	Ground Water: Well Avg	5.61	Acre Inches		12.02			mg/L			595	0	0	14,352	
11/20/2023	Waste Water: Main Lagoon	0.96	Acre Inches		375.00	62.80	476.00	mg/L		1,016,657	3,176	532	4,031	34,129	
11/30/2023	Ground Water: Well Avg	6.25	Acre Inches		12.02			mg/L			663	0	0	15,989	
12/11/2023	Harvest	15.20	Tons	8.45	1.32	0.28	1.92	%							14,327
	Acre Inches Applied:	**40.38**						**Totals:**	**273**	**3,071,151**	**18,875**	**3,747**	**21,632**	**198,982**	**14,327**
Season Nitrogen Ratio:	1.32							**Lbs Per Acre:**			**484**	**96**	**555**	**5,102**	**367**

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Backroad Ranch 2023

Nutrient Applications (Attachment B)

Field Name: BR2

Alfalfa, 39 Acres Planted on 11/14/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			546				
02/14/2023	Ground Water: Well Avg	6.46	Acre Inches		12.02			mg/L			685	0	0	16,526	
03/17/2023	Ground Water: Well Avg	6.31	Acre Inches		12.02			mg/L			669	0	0	16,142	
04/14/2023	Ground Water: Well Avg	5.54	Acre Inches		12.02			mg/L			588	0	0	14,173	
05/12/2023	Ground Water: Well Avg	6.62	Acre Inches		12.02			mg/L			702	0	0	16,936	
06/09/2023	Ground Water: Well Avg	6.15	Acre Inches		12.02			mg/L			652	0	0	15,733	
07/07/2023	Ground Water: Well Avg	6.46	Acre Inches		12.02			mg/L			685	0	0	16,526	
08/06/2023	Ground Water: Well Avg	5.85	Acre Inches		12.02			mg/L			620	0	0	14,966	
09/10/2023	Ground Water: Well Avg	6.62	Acre Inches		12.02			mg/L			702	0	0	16,936	
10/25/2023	Ground Water: Well Avg	5.54	Acre Inches		12.02			mg/L			588	0	0	14,173	
12/11/2023	Harvest	8.40	Tons	6.82	3.74	0.36	3.26	%							22,833
	Acre Inches Applied:	**55.55**						**Totals:**			**6,439**	**0**	**0**	**142,112**	**22,833**
Season Nitrogen Ratio:	0.28							**Lbs Per Acre:**			**165**	**0**	**0**	**3,644**	**585**

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Nutrient Applications (Attachment B)

Field Name: BR3

Corn, 38 Acres Planted on 06/13/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			532				
06/01/2023	Corral Solids: Main Corral	4.00	Tons	13.00	2.32	0.62	1.73	%	152		6,136	1,640	4,576	0	
06/25/2023	Ground Water: Well Avg	5.40	Acre Inches		12.02			mg/L			558	0	0	13,460	
06/25/2023	Waste Water: Main Lagoon	0.40	Acre Inches		403.00	64.00	556.00	mg/L		412,745	1,385	220	1,912	14,922	
07/10/2023	Ground Water: Well Avg	6.40	Acre Inches		12.02			mg/L			662	0	0	15,953	
07/25/2023	Ground Water: Well Avg	5.00	Acre Inches		12.02			mg/L			517	0	0	12,463	
07/25/2023	Waste Water: Main Lagoon	0.40	Acre Inches		271.00	36.50	263.00	mg/L		412,745	932	125	904	11,759	
08/08/2023	Ground Water: Well Avg	6.00	Acre Inches		12.02			mg/L			620	0	0	14,956	
08/22/2023	Ground Water: Well Avg	5.20	Acre Inches		12.02			mg/L			537	0	0	12,962	
08/22/2023	Waste Water: Main Lagoon	0.40	Acre Inches		271.00	36.50	263.00	mg/L		412,745	932	125	904	11,759	
09/01/2023	Ground Water: Well Avg	5.70	Acre Inches		12.02			mg/L			589	0	0	14,208	
09/12/2023	Harvest	31.70	Tons	65.10	1.10	0.19	1.72	%							9,249
	Acre Inches Applied:	**34.90**						**Totals:**	**152**	**1,238,236**	**13,400**	**2,111**	**8,296**	**122,442**	**9,249**
Season Nitrogen Ratio:	1.45							**Lbs Per Acre:**			**353**	**56**	**218**	**3,222**	**243**

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Backroad Ranch 2023

Nutrient Applications (Attachment B)

Field Name: BR4

Corn, 38 Acres Planted on 05/14/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			532				
04/30/2023	Corral Solids: Main Corral	5.00	Tons	13.00	2.32	0.62	1.73	%	190		7,670	2,050	5,719	0	
05/26/2023	Ground Water: Well Avg	5.97	Acre Inches		12.02			mg/L			617	0	0	14,881	
05/26/2023	Waste Water: Main Lagoon	0.35	Acre Inches		403.00	64.00	556.00	mg/L		361,152	1,212	193	1,673	13,056	
06/10/2023	Ground Water: Well Avg	6.07	Acre Inches		12.02			mg/L			627	0	0	15,130	
06/25/2023	Ground Water: Well Avg	6.12	Acre Inches		12.02			mg/L			633	0	0	15,255	
06/25/2023	Waste Water: Main Lagoon	0.40	Acre Inches		403.00	64.00	556.00	mg/L		412,745	1,385	220	1,912	14,922	
07/09/2023	Ground Water: Well Avg	6.24	Acre Inches		12.02			mg/L			645	0	0	15,554	
07/23/2023	Ground Water: Well Avg	5.97	Acre Inches		12.02			mg/L			617	0	0	14,881	
07/23/2023	Waste Water: Main Lagoon	0.40	Acre Inches		271.00	36.50	263.00	mg/L		412,745	932	125	904	11,759	
08/13/2023	Harvest	30.90	Tons	58.40	1.16	0.18	0.74	%							11,332
	Acre Inches Applied:	**31.52**						**Totals:**	**190**	**1,186,643**	**14,871**	**2,588**	**10,208**	**115,439**	**11,332**
Season Nitrogen Ratio:	1.31							**Lbs Per Acre:**			**391**	**68**	**269**	**3,038**	**298**

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Nutrient Applications (Attachment B)

Field Name: BR5

Wheat, 39 Acres Planted on 12/27/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			546				
01/20/2023	Ground Water: Well Avg	3.99	Acre Inches		12.02			mg/L			423	0	0	10,207	
01/20/2023	Waste Water: Main Lagoon	0.75	Acre Inches		340.00	14.00	57.80	mg/L		794,263	2,250	93	383	2,911	
03/19/2023	Ground Water: Well Avg	4.64	Acre Inches		12.02			mg/L			492	0	0	11,870	
03/19/2023	Waste Water: Main Lagoon	0.88	Acre Inches		340.00	14.00	57.80	mg/L		931,936	2,640	109	449	3,416	
05/16/2023	Ground Water: Well Avg	4.53	Acre Inches		12.02			mg/L			480	0	0	11,589	
05/16/2023	Waste Water: Main Lagoon	0.86	Acre Inches		403.00	64.00	556.00	mg/L		910,755	3,057	486	4,218	32,926	
05/31/2023	Harvest	20.90	Tons	57.50	1.58	0.34	1.92	%							10,947
	Acre Inches Applied:	**15.65**						**Totals:**		**2,636,954**	**9,888**	**687**	**5,050**	**72,919**	**10,947**
Season Nitrogen Ratio:	0.90							**Lbs Per Acre:**			**254**	**18**	**129**	**1,870**	**281**

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Nutrient Applications (Attachment B)

Field Name: BR5

Corn, 39 Acres Planted on 08/15/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
07/30/2023	Corral Solids: Main Corral	3.50	Tons	13.00	2.32	0.62	1.73	%	136		5,510	1,473	4,109	0	
08/27/2023	Ground Water: Well Avg	4.96	Acre Inches		12.02			mg/L			526	0	0	12,689	
08/27/2023	Waste Water: Main Lagoon	0.40	Acre Inches		271.00	36.50	263.00	mg/L		423,607	956	129	928	12,068	
09/11/2023	Ground Water: Well Avg	6.05	Acre Inches		12.02			mg/L			642	0	0	15,478	
09/26/2023	Ground Water: Well Avg	5.11	Acre Inches		12.02			mg/L			542	0	0	13,073	
09/26/2023	Waste Water: Main Lagoon	0.40	Acre Inches		375.00	62.80	476.00	mg/L		423,607	1,323	222	1,680	14,221	
10/10/2023	Ground Water: Well Avg	6.21	Acre Inches		12.02			mg/L			659	0	0	15,887	
10/24/2023	Ground Water: Well Avg	5.96	Acre Inches		12.02			mg/L			632	0	0	15,247	
10/24/2023	Waste Water: Main Lagoon	0.35	Acre Inches		375.00	62.80	476.00	mg/L		370,656	1,158	194	1,470	12,443	
11/03/2023	Ground Water: Well Avg	5.41	Acre Inches		12.02			mg/L			574	0	0	13,840	
11/14/2023	Harvest	30.50	Tons	69.90	1.30	0.27	1.17	%							9,309
	Acre Inches Applied:	**34.85**						**Totals:**	**136**	**1,217,870**	**12,523**	**2,017**	**8,186**	**124,946**	**9,309**
Season Nitrogen Ratio:	1.35							**Lbs Per Acre:**			**321**	**52**	**210**	**3,204**	**239**

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Backroad Ranch 2023

Nutrient Applications (Attachment B)

Field Name: BR6

Wheat, 36 Acres Planted on 12/01/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
12/20/2022	Ground Water: Well Avg	5.00	Acre Inches		12.82			mg/L			522	0	0	12,622	
12/20/2022	Waste Water: Main Lagoon	0.50	Acre Inches		441.00	78.50	898.00	mg/L		488,777	1,796	320	3,656	34,323	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			504				
	Acre Inches Applied:	**5.50**						**Totals:**		**488,777**	**2,822**	**320**	**3,656**	**46,944**	
Season Nitrogen Ratio:								**Lbs Per Acre:**			**78**	**9**	**102**	**1,304**	

Season Notes: Crop failure due to flooding.

Field Name: BR6

Corn, 36 Acres Planted on 05/14/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
04/30/2023	Corral Solids: Main Corral	4.00	Tons	13.00	2.32	0.62	1.73	%	144		5,813	1,553	4,335	0	
05/26/2023	Ground Water: Well Avg	5.63	Acre Inches		12.02			mg/L			551	0	0	13,295	
05/26/2023	Waste Water: Main Lagoon	0.50	Acre Inches		403.00	64.00	556.00	mg/L		488,777	1,641	261	2,264	17,670	
06/10/2023	Ground Water: Well Avg	7.12	Acre Inches		12.02			mg/L			697	0	0	16,814	
06/25/2023	Ground Water: Well Avg	5.78	Acre Inches		12.02			mg/L			566	0	0	13,649	
06/25/2023	Waste Water: Main Lagoon	0.55	Acre Inches		403.00	64.00	556.00	mg/L		537,655	1,805	287	2,490	19,437	
07/09/2023	Ground Water: Well Avg	6.29	Acre Inches		12.02			mg/L			616	0	0	14,854	
07/23/2023	Ground Water: Well Avg	5.63	Acre Inches		12.02			mg/L			551	0	0	13,295	
07/23/2023	Waste Water: Main Lagoon	0.46	Acre Inches		271.00	36.50	263.00	mg/L		449,675	1,015	137	985	12,811	
08/13/2023	Harvest	31.40	Tons	62.70	1.27	0.16	0.66	%							10,710
	Acre Inches Applied:	**31.96**						**Totals:**	**144**	**1,476,108**	**13,256**	**2,237**	**10,074**	**121,825**	**10,710**
Season Nitrogen Ratio:	1.24							**Lbs Per Acre:**			**368**	**62**	**280**	**3,384**	**297**

INNOVATIVE AG SERVICES

Backroad Ranch 2023

Nutrient Applications (Attachment B)

Field Name: BR7

Wheat, 78 Acres Planted on 11/15/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
11/20/2022	Ground Water: Well Avg	5.00	Acre Inches		12.82			mg/L			1,131	0	0	27,347	
11/20/2022	Waste Water: Main Lagoon	0.50	Acre Inches		441.00	78.50	898.00	mg/L		1,059,018	3,891	693	7,922	74,366	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			1,092				
01/20/2023	Ground Water: Well Avg	4.10	Acre Inches		12.02			mg/L			870	0	0	20,978	
01/20/2023	Waste Water: Main Lagoon	0.77	Acre Inches		340.00	14.00	57.80	mg/L		1,630,887	4,619	190	785	5,977	
03/19/2023	Ground Water: Well Avg	4.42	Acre Inches		12.02			mg/L			938	0	0	22,615	
03/19/2023	Waste Water: Main Lagoon	0.83	Acre Inches		340.00	14.00	57.80	mg/L		1,757,969	4,979	205	846	6,444	
05/16/2023	Ground Water: Well Avg	4.37	Acre Inches		12.02			mg/L			927	0	0	22,359	
05/16/2023	Waste Water: Main Lagoon	0.78	Acre Inches		403.00	64.00	556.00	mg/L		1,652,068	5,546	881	7,652	59,726	
05/31/2023	Harvest	18.70	Tons	58.60	1.43	0.32	2.07	%							17,271
	Acre Inches Applied:	**20.77**						**Totals:**		**6,099,942**	**23,992**	**1,969**	**17,205**	**239,813**	**17,271**
Season Nitrogen Ratio:	1.39							**Lbs Per Acre:**			**308**	**25**	**221**	**3,075**	**221**

INNOVATIVE AG SERVICES

Backroad Ranch 2023

Nutrient Applications (Attachment B)

Field Name: BR7

Corn, 78 Acres Planted on 07/15/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
07/01/2023	Corral Solids: Main Corral	3.50	Tons	13.00	2.32	0.62	1.73	%	273		11,021	2,945	8,218	0	
08/27/2023	Ground Water: Well Avg	4.82	Acre Inches		12.02			mg/L			1,023	0	0	24,662	
08/27/2023	Waste Water: Main Lagoon	0.39	Acre Inches		271.00	36.50	263.00	mg/L		826,034	1,865	251	1,810	23,533	
09/11/2023	Ground Water: Well Avg	5.65	Acre Inches		12.02			mg/L			1,199	0	0	28,908	
09/26/2023	Ground Water: Well Avg	5.89	Acre Inches		12.02			mg/L			1,250	0	0	30,136	
09/26/2023	Waste Water: Main Lagoon	0.45	Acre Inches		375.00	62.80	476.00	mg/L		953,116	2,977	498	3,779	31,996	
10/10/2023	Ground Water: Well Avg	5.73	Acre Inches		12.02			mg/L			1,216	0	0	29,318	
10/24/2023	Ground Water: Well Avg	5.42	Acre Inches		12.02			mg/L			1,150	0	0	27,731	
10/24/2023	Waste Water: Main Lagoon	0.35	Acre Inches		375.00	62.80	476.00	mg/L		741,312	2,316	388	2,939	24,886	
11/03/2023	Ground Water: Well Avg	4.00	Acre Inches		12.02			mg/L			849	0	0	20,466	
11/14/2023	Harvest	31.50	Tons	70.70	1.25	0.26	1.12	%							17,998
	Acre Inches Applied:	**32.70**						**Totals:**	**273**	**2,520,462**	**24,864**	**4,083**	**16,746**	**241,637**	**17,998**
Season Nitrogen Ratio:	1.38							**Lbs Per Acre:**			**319**	**52**	**215**	**3,098**	**231**

INNOVATIVE AG SERVICES

Backroad Ranch 2023

Nutrient Applications (Attachment B)

Field Name: BR8

Wheat, 80 Acres Planted on 12/27/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
11/12/2022	Ground Water: Well Avg	5.00	Acre Inches		12.82			mg/L			1,160	0	0	28,048	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			1,120				
01/18/2023	Ground Water: Well Avg	4.10	Acre Inches		12.02			mg/L			892	0	0	21,516	
01/18/2023	Waste Water: Main Lagoon	0.77	Acre Inches		340.00	14.00	57.80	mg/L		1,672,705	4,738	195	806	6,130	
03/17/2023	Ground Water: Well Avg	4.42	Acre Inches		12.02			mg/L			962	0	0	23,195	
03/17/2023	Waste Water: Main Lagoon	0.83	Acre Inches		340.00	14.00	57.80	mg/L		1,803,046	5,106	210	868	6,609	
05/14/2023	Ground Water: Well Avg	4.36	Acre Inches		12.02			mg/L			949	0	0	22,880	
05/14/2023	Waste Water: Main Lagoon	0.82	Acre Inches		403.00	64.00	556.00	mg/L		1,781,322	5,980	950	8,250	64,398	
05/31/2023	Harvest	21.40	Tons	62.50	1.54	0.36	1.69	%							19,774
	Acre Inches Applied:	**20.30**						**Totals:**		**5,257,072**	**20,906**	**1,355**	**9,924**	**172,777**	**19,774**
Season Nitrogen Ratio:	1.06							**Lbs Per Acre:**			**261**	**17**	**124**	**2,160**	**247**

INNOVATIVE AG SERVICES

Backroad Ranch 2023

Nutrient Applications (Attachment B)

Field Name: BR8

Corn, 80 Acres Planted on 08/15/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
07/25/2023	Corral Solids: Main Corral	3.50	Tons	13.00	2.32	0.62	1.73	%	280		11,303	3,021	8,429	0	
08/25/2023	Ground Water: Well Avg	5.81	Acre Inches		12.02			mg/L			1,264	0	0	30,490	
08/25/2023	Waste Water: Main Lagoon	0.38	Acre Inches		271.00	36.50	263.00	mg/L		825,491	1,863	251	1,809	23,517	
09/09/2023	Ground Water: Well Avg	6.64	Acre Inches		12.02			mg/L			1,445	0	0	34,845	
09/24/2023	Ground Water: Well Avg	5.89	Acre Inches		12.02			mg/L			1,282	0	0	30,909	
09/24/2023	Waste Water: Main Lagoon	0.40	Acre Inches		375.00	62.80	476.00	mg/L		868,938	2,714	454	3,446	29,170	
10/08/2023	Ground Water: Well Avg	6.72	Acre Inches		12.02			mg/L			1,462	0	0	35,265	
10/22/2023	Ground Water: Well Avg	5.81	Acre Inches		12.02			mg/L			1,264	0	0	30,490	
10/22/2023	Waste Water: Main Lagoon	0.39	Acre Inches		375.00	62.80	476.00	mg/L		847,214	2,646	443	3,359	28,441	
11/14/2023	Harvest	31.20	Tons	70.70	1.31	0.25	1.13	%							19,161
	Acre Inches Applied:	**32.04**						**Totals:**	**280**	**2,541,642**	**25,244**	**4,170**	**17,042**	**243,126**	**19,161**
Season Nitrogen Ratio:	1.32							**Lbs Per Acre:**			**316**	**52**	**213**	**3,039**	**240**

INNOVATIVE AG SERVICES

Backroad Ranch 2023

Nutrient Applications (Attachment B)

Field Name: BR9

Alfalfa, 39 Acres Planted on 11/15/2020

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			546				
02/11/2023	Ground Water: Well Avg	6.46	Acre Inches		12.02			mg/L			685	0	0	16,526	
03/14/2023	Ground Water: Well Avg	6.31	Acre Inches		12.02			mg/L			669	0	0	16,142	
04/11/2023	Ground Water: Well Avg	5.54	Acre Inches		12.02			mg/L			588	0	0	14,173	
05/09/2023	Ground Water: Well Avg	6.62	Acre Inches		12.02			mg/L			702	0	0	16,936	
06/06/2023	Ground Water: Well Avg	6.15	Acre Inches		12.02			mg/L			652	0	0	15,733	
07/04/2023	Ground Water: Well Avg	6.46	Acre Inches		12.02			mg/L			685	0	0	16,526	
08/03/2023	Ground Water: Well Avg	5.85	Acre Inches		12.02			mg/L			620	0	0	14,966	
09/07/2023	Ground Water: Well Avg	6.62	Acre Inches		12.02			mg/L			702	0	0	16,936	
10/22/2023	Ground Water: Well Avg	5.54	Acre Inches		12.02			mg/L			588	0	0	14,173	
12/11/2023	Harvest	8.20	Tons	9.83	2.29	0.20	1.43	%							13,207
	Acre Inches Applied:	**55.55**						**Totals:**			**6,439**	**0**	**0**	**142,112**	**13,207**
Season Nitrogen Ratio:	0.49							**Lbs Per Acre:**			**165**	**0**	**0**	**3,644**	**339**

INNOVATIVE AG SERVICES

Backroad Ranch 2023

Nutrient Applications (Attachment B)

Field Name: BR10

Alfalfa, 40 Acres Planted on 11/11/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
10/12/2022	Corral Solids: Main Corral	10.00	Tons	26.10	1.64	0.67	2.35	%	400		9,696	3,937	13,893	0	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			560				
02/17/2023	Ground Water: Well Avg	6.45	Acre Inches		12.02			mg/L			702	0	0	16,924	
03/20/2023	Ground Water: Well Avg	6.30	Acre Inches		12.02			mg/L			686	0	0	16,530	
04/17/2023	Ground Water: Well Avg	5.55	Acre Inches		12.02			mg/L			604	0	0	14,562	
05/15/2023	Ground Water: Well Avg	6.60	Acre Inches		12.02			mg/L			718	0	0	17,318	
06/12/2023	Ground Water: Well Avg	6.15	Acre Inches		12.02			mg/L			669	0	0	16,137	
07/10/2023	Ground Water: Well Avg	6.45	Acre Inches		12.02			mg/L			702	0	0	16,924	
08/09/2023	Ground Water: Well Avg	5.85	Acre Inches		12.02			mg/L			636	0	0	15,350	
09/13/2023	Ground Water: Well Avg	6.60	Acre Inches		12.02			mg/L			718	0	0	17,318	
10/28/2023	Ground Water: Well Avg	5.50	Acre Inches		12.02			mg/L			598	0	0	14,431	
12/11/2023	Harvest	7.95	Tons	8.95	2.70	0.25	2.05	%							15,635
	Acre Inches Applied:	**55.45**						**Totals:**	**400**		**16,288**	**3,937**	**13,893**	**145,494**	**15,635**
Season Nitrogen Ratio:	1.04							**Lbs Per Acre:**			**407**	**98**	**347**	**3,637**	**391**

INNOVATIVE AG SERVICES

Backroad Ranch 2023

Nutrient Applications (Attachment B)

Field Name: BR11

Wheat, 23 Acres Planted on 12/27/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
11/06/2022	Ground Water: Well Avg	4.00	Acre Inches		12.82			mg/L			267	0	0	6,451	
11/06/2022	Waste Water: Main Lagoon	0.50	Acre Inches		441.00	78.50	898.00	mg/L		312,274	1,147	204	2,336	21,928	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			322				
01/18/2023	Ground Water: Well Avg	3.84	Acre Inches		12.02			mg/L			240	0	0	5,793	
01/18/2023	Waste Water: Main Lagoon	0.73	Acre Inches		340.00	14.00	57.80	mg/L		455,921	1,291	53	219	1,671	
03/17/2023	Ground Water: Well Avg	4.94	Acre Inches		12.02			mg/L			309	0	0	7,453	
03/17/2023	Waste Water: Main Lagoon	0.93	Acre Inches		340.00	14.00	57.80	mg/L		580,830	1,645	68	280	2,129	
05/14/2023	Ground Water: Well Avg	4.75	Acre Inches		12.02			mg/L			297	0	0	7,166	
05/14/2023	Waste Water: Main Lagoon	0.90	Acre Inches		403.00	64.00	556.00	mg/L		562,094	1,887	300	2,603	20,321	
05/31/2023	Harvest	18.40	Tons	56.40	1.48	0.31	1.45	%							5,462
	Acre Inches Applied:	**20.59**						**Totals:**		**1,911,120**	**7,406**	**625**	**5,438**	**72,913**	**5,462**
Season Nitrogen Ratio:	1.36							**Lbs Per Acre:**			**322**	**27**	**236**	**3,170**	**237**

INNOVATIVE AG SERVICES

Backroad Ranch 2023

Nutrient Applications (Attachment B)

Field Name: BR11

Corn, 23 Acres Planted on 07/14/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
07/01/2023	Corral Solids: Main Corral	4.00	Tons	13.00	2.32	0.62	1.73	%	92		3,714	992	2,769	0	
07/24/2023	Ground Water: Well Avg	5.17	Acre Inches		12.02			mg/L			323	0	0	7,800	
07/24/2023	Waste Water: Main Lagoon	0.33	Acre Inches		271.00	36.50	263.00	mg/L		206,101	465	63	451	5,871	
08/08/2023	Ground Water: Well Avg	5.61	Acre Inches		12.02			mg/L			351	0	0	8,464	
08/23/2023	Ground Water: Well Avg	5.41	Acre Inches		12.02			mg/L			339	0	0	8,162	
08/23/2023	Waste Water: Main Lagoon	0.55	Acre Inches		271.00	36.50	263.00	mg/L		343,502	775	104	753	9,786	
09/06/2023	Ground Water: Well Avg	5.88	Acre Inches		12.02			mg/L			368	0	0	8,871	
09/20/2023	Ground Water: Well Avg	5.17	Acre Inches		12.02			mg/L			323	0	0	7,800	
09/20/2023	Waste Water: Main Lagoon	0.53	Acre Inches		375.00	62.80	476.00	mg/L		331,011	1,034	173	1,312	11,112	
09/30/2023	Ground Water: Well Avg	5.52	Acre Inches		12.02			mg/L			345	0	0	8,328	
10/13/2023	Harvest	29.40	Tons	66.10	1.26	0.20	1.08	%							5,777
	Acre Inches Applied:	**34.17**						**Totals:**	**92**	**880,614**	**8,038**	**1,333**	**5,286**	**76,195**	**5,777**
Season Nitrogen Ratio:	1.39							**Lbs Per Acre:**			**349**	**58**	**230**	**3,313**	**251**

INNOVATIVE AG SERVICES

Backroad Ranch 2023

Nutrient Applications (Attachment B)

Field Name: BR12

Wheat, 24 Acres Planted on 12/27/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
11/02/2022	Ground Water: Well Avg	4.00	Acre Inches		12.82			mg/L			278	0	0	6,732	
11/02/2022	Waste Water: Main Lagoon	0.50	Acre Inches		441.00	78.50	898.00	mg/L		325,852	1,197	213	2,437	22,882	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			336				
01/22/2023	Ground Water: Well Avg	3.86	Acre Inches		12.02			mg/L			252	0	0	6,077	
01/22/2023	Waste Water: Main Lagoon	0.73	Acre Inches		340.00	14.00	57.80	mg/L		475,743	1,347	55	229	1,744	
03/21/2023	Ground Water: Well Avg	4.91	Acre Inches		12.02			mg/L			321	0	0	7,730	
03/21/2023	Waste Water: Main Lagoon	0.93	Acre Inches		340.00	14.00	57.80	mg/L		606,084	1,716	71	292	2,221	
05/18/2023	Ground Water: Well Avg	4.37	Acre Inches		12.02			mg/L			285	0	0	6,880	
05/18/2023	Waste Water: Main Lagoon	0.89	Acre Inches		403.00	64.00	556.00	mg/L		580,016	1,947	309	2,686	20,969	
05/31/2023	Harvest	21.20	Tons	53.90	1.37	0.30	1.78	%							6,427
	Acre Inches Applied:	**20.19**						**Totals:**		**1,987,695**	**7,680**	**648**	**5,645**	**75,234**	**6,427**
Season Nitrogen Ratio:	1.20							**Lbs Per Acre:**			**320**	**27**	**235**	**3,135**	**268**

INNOVATIVE AG SERVICES

Backroad Ranch 2023

Nutrient Applications (Attachment B)

Field Name: BR12

Corn, 24 Acres Planted on 07/14/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
06/30/2023	Corral Solids: Main Corral	4.00	Tons	13.00	2.32	0.62	1.73	%	96		3,875	1,036	2,890	0	
07/28/2023	Ground Water: Well Avg	6.15	Acre Inches		12.02			mg/L			402	0	0	9,682	
07/28/2023	Waste Water: Main Lagoon	0.43	Acre Inches		271.00	36.50	263.00	mg/L		280,232	633	85	614	7,983	
08/12/2023	Ground Water: Well Avg	6.55	Acre Inches		12.02			mg/L			428	0	0	10,312	
08/27/2023	Ground Water: Well Avg	5.38	Acre Inches		12.02			mg/L			351	0	0	8,470	
08/27/2023	Waste Water: Main Lagoon	0.45	Acre Inches		271.00	36.50	263.00	mg/L		293,266	662	89	642	8,355	
09/10/2023	Ground Water: Well Avg	6.81	Acre Inches		12.02			mg/L			444	0	0	10,721	
09/24/2023	Ground Water: Well Avg	5.15	Acre Inches		12.02			mg/L			336	0	0	8,108	
09/24/2023	Waste Water: Main Lagoon	0.43	Acre Inches		375.00	62.80	476.00	mg/L		280,232	875	147	1,111	9,407	
10/03/2023	Ground Water: Well Avg	5.51	Acre Inches		12.02			mg/L			360	0	0	8,675	
10/13/2023	Harvest	31.00	Tons	67.10	1.22	0.23	1.09	%							5,973
	Acre Inches Applied:	**36.86**						**Totals:**	**96**	**853,731**	**8,366**	**1,357**	**5,257**	**81,712**	**5,973**
Season Nitrogen Ratio:	1.40							**Lbs Per Acre:**			**349**	**57**	**219**	**3,405**	**249**

INNOVATIVE AG SERVICES

Backroad Ranch 2023

Nutrient Applications (Attachment B)

Field Name: BR13

Wheat, 19 Acres Planted on 12/27/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
11/04/2022	Ground Water: Well Avg	4.00	Acre Inches		12.82			mg/L			220	0	0	5,329	
11/04/2022	Waste Water: Main Lagoon	0.50	Acre Inches		441.00	78.50	898.00	mg/L		257,966	948	169	1,930	18,115	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			266				
01/17/2023	Ground Water: Well Avg	3.76	Acre Inches		12.02			mg/L			194	0	0	4,686	
01/17/2023	Waste Water: Main Lagoon	0.71	Acre Inches		340.00	14.00	57.80	mg/L		366,312	1,037	43	176	1,343	
03/16/2023	Ground Water: Well Avg	5.09	Acre Inches		12.02			mg/L			263	0	0	6,344	
03/16/2023	Waste Water: Main Lagoon	0.96	Acre Inches		340.00	14.00	57.80	mg/L		495,294	1,403	58	238	1,815	
05/13/2023	Ground Water: Well Avg	4.87	Acre Inches		12.02			mg/L			252	0	0	6,070	
05/13/2023	Waste Water: Main Lagoon	0.92	Acre Inches		403.00	64.00	556.00	mg/L		474,657	1,593	253	2,198	17,160	
05/31/2023	Harvest	19.00	Tons	58.40	1.88	0.40	2.97	%							5,647
	Acre Inches Applied:	**20.81**						**Totals:**		**1,594,229**	**6,177**	**522**	**4,543**	**60,861**	**5,647**
Season Nitrogen Ratio:	1.09							**Lbs Per Acre:**			**325**	**27**	**239**	**3,203**	**297**

INNOVATIVE AG SERVICES

Backroad Ranch 2023

Nutrient Applications (Attachment B)

Field Name: BR13

Corn, 19 Acres Planted on 07/14/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
06/30/2023	Corral Solids: Main Corral	4.00	Tons	13.00	2.32	0.62	1.73	%	76		3,068	820	2,288	0	
07/23/2023	Ground Water: Well Avg	5.82	Acre Inches		12.02			mg/L			301	0	0	7,254	
07/23/2023	Waste Water: Main Lagoon	0.42	Acre Inches		271.00	36.50	263.00	mg/L		216,691	489	66	475	6,173	
08/07/2023	Ground Water: Well Avg	5.65	Acre Inches		12.02			mg/L			292	0	0	7,042	
08/22/2023	Ground Water: Well Avg	4.89	Acre Inches		12.02			mg/L			253	0	0	6,095	
08/22/2023	Waste Water: Main Lagoon	0.50	Acre Inches		271.00	36.50	263.00	mg/L		257,966	582	78	565	7,349	
09/05/2023	Ground Water: Well Avg	5.73	Acre Inches		12.02			mg/L			296	0	0	7,142	
09/19/2023	Ground Water: Well Avg	4.82	Acre Inches		12.02			mg/L			249	0	0	6,007	
09/19/2023	Waste Water: Main Lagoon	0.49	Acre Inches		375.00	62.80	476.00	mg/L		252,807	790	132	1,002	8,487	
09/29/2023	Ground Water: Well Avg	5.33	Acre Inches		12.02			mg/L			276	0	0	6,643	
10/13/2023	Harvest	30.80	Tons	66.20	1.22	0.22	1.13	%							4,826
	Acre Inches Applied:	**33.65**						**Totals:**	**76**	**727,464**	**6,595**	**1,096**	**4,330**	**62,191**	**4,826**
Season Nitrogen Ratio:	1.37							**Lbs Per Acre:**			**347**	**58**	**228**	**3,273**	**254**

INNOVATIVE AG SERVICES

Backroad Ranch 2023

Nutrient Applications (Attachment B)

Field Name: BR14

Wheat, 19 Acres Planted on 12/27/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
11/01/2022	Ground Water: Well Avg	4.00	Acre Inches		12.82			mg/L			220	0	0	5,329	
11/01/2022	Waste Water: Main Lagoon	0.50	Acre Inches		441.00	78.50	898.00	mg/L		257,966	948	169	1,930	18,115	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			266				
01/17/2023	Ground Water: Well Avg	3.76	Acre Inches		12.02			mg/L			194	0	0	4,686	
01/17/2023	Waste Water: Main Lagoon	0.71	Acre Inches		340.00	14.00	57.80	mg/L		366,312	1,037	43	176	1,343	
03/16/2023	Ground Water: Well Avg	5.09	Acre Inches		12.02			mg/L			263	0	0	6,344	
03/16/2023	Waste Water: Main Lagoon	0.96	Acre Inches		340.00	14.00	57.80	mg/L		495,294	1,403	58	238	1,815	
05/13/2023	Ground Water: Well Avg	4.87	Acre Inches		12.02			mg/L			252	0	0	6,070	
05/13/2023	Waste Water: Main Lagoon	0.92	Acre Inches		403.00	64.00	556.00	mg/L		474,657	1,593	253	2,198	17,160	
05/31/2023	Harvest	19.80	Tons	57.10	1.54	0.33	1.88	%							4,971
	Acre Inches Applied:	**20.81**						**Totals:**		**1,594,229**	**6,177**	**522**	**4,543**	**60,861**	**4,971**
Season Nitrogen Ratio:	1.24							**Lbs Per Acre:**			**325**	**27**	**239**	**3,203**	**262**

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Backroad Ranch 2023

Nutrient Applications (Attachment B)

Field Name: BR14

Corn, 19 Acres Planted on 07/14/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
06/29/2023	Corral Solids: Main Corral	4.00	Tons	13.00	2.32	0.62	1.73	%	76		3,068	820	2,288	0	
07/23/2023	Ground Water: Well Avg	5.52	Acre Inches		12.02			mg/L			285	0	0	6,880	
07/23/2023	Waste Water: Main Lagoon	0.46	Acre Inches		271.00	36.50	263.00	mg/L		237,329	536	72	520	6,761	
08/07/2023	Ground Water: Well Avg	5.95	Acre Inches		12.02			mg/L			307	0	0	7,416	
08/22/2023	Ground Water: Well Avg	5.78	Acre Inches		12.02			mg/L			299	0	0	7,204	
08/22/2023	Waste Water: Main Lagoon	0.49	Acre Inches		271.00	36.50	263.00	mg/L		252,807	571	77	554	7,202	
09/05/2023	Ground Water: Well Avg	6.24	Acre Inches		12.02			mg/L			322	0	0	7,777	
09/19/2023	Ground Water: Well Avg	5.52	Acre Inches		12.02			mg/L			285	0	0	6,880	
09/19/2023	Waste Water: Main Lagoon	0.46	Acre Inches		375.00	62.80	476.00	mg/L		237,329	741	124	941	7,967	
09/29/2023	Ground Water: Well Avg	4.00	Acre Inches		12.02			mg/L			207	0	0	4,985	
10/13/2023	Harvest	29.80	Tons	66.70	1.25	0.24	1.21	%							4,714
	Acre Inches Applied:	**34.42**						**Totals:**	**76**	**727,464**	**6,622**	**1,093**	**4,303**	**63,072**	**4,714**
Season Nitrogen Ratio:	1.40							**Lbs Per Acre:**			**348**	**58**	**226**	**3,320**	**248**

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Backroad Ranch 2023

Nutrient Applications (Attachment B)

Field Name: BR15

Wheat, 46 Acres Planted on 12/27/2022

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
11/13/2022	Ground Water: Well Avg	4.00	Acre Inches		12.82			mg/L			534	0	0	12,902	
01/01/2023	Atmospheric Deposit	14.00	Pounds		100.00			%			644				
01/23/2023	Ground Water: Well Avg	4.02	Acre Inches		12.02			mg/L			503	0	0	12,130	
01/23/2023	Waste Water: Main Lagoon	0.76	Acre Inches		340.00	14.00	57.80	mg/L		949,314	2,689	111	457	3,479	
03/22/2023	Ground Water: Well Avg	4.57	Acre Inches		12.02			mg/L			572	0	0	13,790	
03/22/2023	Waste Water: Main Lagoon	0.86	Acre Inches		340.00	14.00	57.80	mg/L		1,074,224	3,042	125	517	3,937	
05/19/2023	Ground Water: Well Avg	4.48	Acre Inches		12.02			mg/L			561	0	0	13,518	
05/19/2023	Waste Water: Main Lagoon	0.85	Acre Inches		403.00	64.00	556.00	mg/L		1,061,733	3,564	566	4,917	38,384	
05/31/2023	Harvest	19.50	Tons	56.70	1.87	0.35	2.02	%							14,526
	Acre Inches Applied:	**19.54**						**Totals:**		**3,085,272**	**12,108**	**802**	**5,892**	**98,141**	**14,526**
Season Nitrogen Ratio:	0.83							**Lbs Per Acre:**			**263**	**17**	**128**	**2,133**	**316**

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Backroad Ranch 2023

Nutrient Applications (Attachment B)

Field Name: BR15

Corn, 46 Acres Planted on 07/17/2023

Date	Event/Source	Amount Applied/Yield (per Acre)	Units	Lab Sample Data % Moist.	Nitrogen	Phos.	Potass.	Units	Manure Applied (Tons)	Wastewater Applied (Gallons)	Nitrogen Applied (Lbs)	Phosphorus Applied (Lbs)	Potassium Applied (Lbs)	Salt Applied (Lbs)	Nitrogen Extracted (Lbs)
06/28/2023	Corral Solids: Main Corral	4.00	Tons	13.00	2.32	0.62	1.73	%	184		7,428	1,985	5,539	0	
07/29/2023	Ground Water: Well Avg	5.21	Acre Inches		12.02			mg/L			652	0	0	15,721	
07/29/2023	Waste Water: Main Lagoon	0.53	Acre Inches		271.00	36.50	263.00	mg/L		662,022	1,495	201	1,450	18,860	
08/13/2023	Ground Water: Well Avg	6.10	Acre Inches		12.02			mg/L			763	0	0	18,406	
08/28/2023	Ground Water: Well Avg	5.32	Acre Inches		12.02			mg/L			666	0	0	16,053	
08/28/2023	Waste Water: Main Lagoon	0.54	Acre Inches		271.00	36.50	263.00	mg/L		674,513	1,523	205	1,478	19,216	
09/11/2023	Ground Water: Well Avg	6.22	Acre Inches		12.02			mg/L			778	0	0	18,768	
09/25/2023	Ground Water: Well Avg	5.21	Acre Inches		12.02			mg/L			652	0	0	15,721	
09/25/2023	Waste Water: Main Lagoon	0.43	Acre Inches		375.00	62.80	476.00	mg/L		537,112	1,678	281	2,130	18,031	
10/05/2023	Ground Water: Well Avg	5.62	Acre Inches		12.02			mg/L			703	0	0	16,958	
10/16/2023	Harvest	30.70	Tons	68.90	1.34	0.20	1.27	%							11,770
	Acre Inches Applied:	**35.18**						**Totals:**	**184**	**1,873,647**	**16,336**	**2,673**	**10,597**	**157,734**	**11,770**
Season Nitrogen Ratio:	1.39							**Lbs Per Acre:**			**355**	**58**	**230**	**3,429**	**256**

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Nutrient Applications (Attachment B)

Summary of Nutrient Applications, Removal, and Balance

	Total N (Lbs)	Total P (Lbs)	Total K (Lbs)	Total Salts (Lbs)	Total Manure Applied	
Solid Manure	83,060.17	24,411.32	74,506.93	0.00	2,372.50	tons
Process Wastewater	127,537.54	15,479.67	123,238.91	1,097,783.47	42,970,322.04	gallons
Irrigation Water	76,355.18					
Fertilizer / Total Imports	0.00					
Atmospheric Deposition	8,358.00					
Total Nitrogen Applied	**295,310.89**					
Crop Nitrogen Removal	261,844.22					
Nitrogen Balance	**33,466.67**					
Nitrogen Ratio	**1.13**					

- **Nutrient applications shown in Attachment B are on a crop year basis.**
- **Lab sample data results for applications are based on the sample taken closest to the application date. Lab sample data results are shown on 100% dry basis for manure applications and harvest events.**
- **Well Avg: Irrigation source representing the average nutrient values of all irrigation wells sampled for the facility during the reporting year.**

**** Book Value: No sample data results were available. For manure applications and plant tissue harvests, the calculations were based off book values.**

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Nutrient Applications (Attachment B)

FIELD NITROGEN RATIO Calculation:

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

ATMOSHERIC DEPOSITION Applied (lbs) Calculation:

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

HARVEST Nitrogen Extraction (Lbs) Calculation:

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

IRRIGATION Nitrogen and Salts Applied (Lbs) Calculations:

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

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

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

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

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

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

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

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

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

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

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

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

"Lbs Applied per Acre" Calculations:

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

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

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

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

Backroad Ranch 2023

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

A. ESTIMATED TOTAL MANURE TRANSFERRED OFFSITE

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

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

B. ESTIMATED TOTAL PROCESS WASTEWATER TRANSFERRED OFFSITE

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

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

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Land Application Area Description Technical Report (Attachment D)

Field Name	Assessor Parcel Number(s)	Acres	Type of Waste Applied
BR1	x028 x280 x005 x000	39	Both
BR2	x028 x270 x030 x000	39	None
BR3	x028 x270 x030 x000	38	Both
BR4	x028 x270 x030 x000	38	Both
BR5	x028 x270 x030 x000	39	Both
BR6	x028 x270 x030 x000	36	Both
BR7	x028 x270 x030 x000	78	Both
BR8	x028 x270 x029 x000	80	Both
BR9	x155 x190 x001 xxxx	39	None
BR10	x155 x190 x001 xxxx	40	Manure
BR11	x155 x190 x001 xxxx	23	Both
BR12	x155 x190 x001 xxxx	24	Both
BR13	x155 x190 x001 xxxx	19	Both
BR14	x155 x190 x001 xxxx	19	Both
BR15	x155 x190 x001 xxxx, x155 x200 x002 xxxx	46	Both
		597	

Production Area APN(s): x155 x190 x001 xxxx, x155 x200 x002 xxxx

Backroad Ranch 2023

Lab Results Summary (Attachment E)

Process Wastewater

(mgl/ppm unless noted otherwise)

Sample Date:	TKN	TP	TK	EC (umhos/cm)	NH4N	NO3N	TDS	pH (units)	General Minerals CA	MG	NA	HCO3	CO3	SO4	CL
02/13/2023	340.00	14.00	57.80	663	23.00		440.00								
06/09/2023	403.00	64.00	556.00	6,540	330.00	0.00	4,340.00	7.20							
07/12/2023	271.00	36.50	263.00	5,150	227.00		3,420.00								
11/06/2023	375.00	62.80	476.00	6,070	373.00		4,030.00								
Averages:	347.25	44.32	338.20	4,606	238.25	0.00	3,057.50	7.20							

Manure - Corral Solids

(Dry Weight Basis)

Sample Date:	TN	TP	TK	Moisture	Ash	CA	MG	NA	S	CL
06/08/2023	2.32	0.62	1.73	13.00						%
11/06/2023	1.49	0.67	2.96	41.50						%
Averages:	1.90	0.64	2.34	27.25						

Plant Tissue

(Dry Weight Basis)

Field:	Crop #:	Crop	Sample Date:	TN (lbs/ton)	TP (lbs/ton)	TK (lbs/ton)	Moisture (%)	Ash (%)
BR1	1	Sudan	12/11/2023	26.40	5.68	38.40	8.45	11.20
BR2	1	Alfalfa	12/11/2023	74.80	7.26	65.20	6.82	13.20

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Lab Results Summary (Attachment E)

Plant Tissue

(Dry Weight Basis)

Field:	Crop #:	Crop	Sample Date:	TN (lbs/ton)	TP (lbs/ton)	TK (lbs/ton)	Moisture (%)	Ash (%)	
BR3	1	Corn	09/12/2023	22.00	3.80	34.40	65.10	7.39	
BR4	1	Corn	08/13/2023	23.20	3.54	14.80	58.40	4.64	
BR5	1	Wheat	05/31/2023	31.60	6.70	38.40	57.50	10.90	
BR5	2	Corn	11/14/2023	26.00	5.48	23.40	69.90	5.97	
BR6	1	Wheat		11.00	1.70	8.30			BV-C
BR6	2	Corn	08/13/2023	25.40	3.20	13.30	62.70	4.79	
BR7	1	Wheat	05/31/2023	28.60	6.40	41.40	58.60	12.30	
BR7	2	Corn	11/14/2023	25.00	5.26	22.40	70.70	5.71	
BR8	1	Wheat	05/31/2023	30.80	7.16	33.80	62.50	10.80	
BR8	2	Corn	11/14/2023	26.20	5.04	22.60	70.70	5.79	
BR9	1	Alfalfa	12/11/2023	45.80	3.94	28.60	9.83	8.93	
BR10	1	Alfalfa	12/11/2023	54.00	5.04	41.00	8.95	8.25	
BR11	1	Wheat	05/31/2023	29.60	6.20	29.00	56.40	9.89	
BR11	2	Corn	10/13/2023	25.20	4.08	21.60	66.10	5.75	
BR12	1	Wheat	05/31/2023	27.40	5.94	35.60	53.90	12.70	
BR12	2	Corn	10/13/2023	24.40	4.52	21.80	67.10	5.84	
BR13	1	Wheat	05/31/2023	37.60	8.06	59.40	58.40	12.20	
BR13	2	Corn	10/13/2023	24.40	4.48	22.60	66.20	6.01	

INNOVATIVE AG SERVICES

Backroad Ranch 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 (%)
BR14	1	Wheat	05/31/2023	30.80	6.62	37.60	57.10	13.30
BR14	2	Corn	10/13/2023	25.00	4.86	24.20	66.70	6.50
BR15	1	Wheat	05/31/2023	37.40	7.06	40.40	56.70	10.50
BR15	2	Corn	10/16/2023	26.80	4.08	25.40	68.90	5.54

BV-C: Book Value from Central Valley Regional Water Quality Control Board Website table prepared by Roland D. Meyer, UC Davis (As Received basis)

Well / Irrigation Water

(mgl/ppm unless noted otherwise)

	Sample Date:	NO3N	TP	EC (umhos/cm)	NH4N *	TDS	TN	General Minerals CA	MG	NA	HCO3	CO3	SO4	CL
Domestic														
North PS East	12/14/2023	18.20		667										
North PS							Out of service.							
South PS							Out of service							
	Averages:	18.20		667										

INNOVATIVE AG SERVICES

Backroad Ranch 2023

Lab Results Summary (Attachment E)

Well / Irrigation Water

(mgl/ppm unless noted otherwise)

	Sample Date:	NO3N	TP	EC (umhos/cm)	NH4N *	TDS	TN	General Minerals CA	MG	NA	HCO3	CO3	SO4	CL
Irrigation														
Kings Well #2	09/20/2023	15.00		503		360.00	15.00							
Kings Well#1							Out of service							
Kings Well#3	09/20/2023	25.70		672		480.00	25.70							
Tulare Well#1							Out of service							
Tulare Well#2	10/19/2023	6.80		238		170.00	6.80							
Well #3	08/22/2023	0.60		247		150.00	0.60							
	Averages:	12.02		415		290.00	12.02							

* NH4N was non-detectable unless a value is shown

Soils

Field	Sample Date:	PO4P (ppm)
BR7	11/20/2023	33.20
BR15	11/20/2023	50.10

INNOVATIVE AG SERVICES

Backroad Ranch 2023

Planting and Harvest Information (Attachment F)

	Crop #	Crop	Acres Planted	Plant Date	Harvest Date	Estimated Yield (tons)	Tons Harvested	Actual Yield
Field: BR1								
	1	Sudan	39	09/11/2023	12/11/2023	15.0	592.8	15.2
Field: BR2								
	1	Alfalfa	39	11/14/2022	12/11/2023	8.0	327.6	8.4
Field: BR3								
	1	Corn	38	06/13/2023	09/12/2023	30.0	1204.6	31.7
Field: BR4								
	1	Corn	38	05/14/2023	08/13/2023	30.0	1174.2	30.9
Field: BR5								
	1	Wheat	39	12/27/2022	05/31/2023	21.7	815.1	20.9
	2	Corn	39	08/15/2023	11/14/2023	30.0	1189.5	30.5
Field: BR6								
	1	Corn	36	05/14/2023	08/13/2023	30.0	1130.4	31.4
Field: BR7								
	1	Wheat	78	11/15/2022	05/31/2023	18.0	1458.6	18.7
	2	Corn	78	07/15/2023	11/14/2023	30.0	2457.0	31.5
Field: BR8								
	1	Wheat	80	12/27/2022	05/31/2023	21.8	1712.0	21.4
	2	Corn	80	08/15/2023	11/14/2023	30.0	2496.0	31.2
Field: BR9								
	1	Alfalfa	39	11/15/2020	12/11/2023	7.9	319.8	8.2
Field: BR10								
	1	Alfalfa	40	11/11/2022	12/11/2023	8.0	318.0	8.0

INNOVATIVE AG SERVICES

Backroad Ranch 2023

Planting and Harvest Information (Attachment F)

	Crop #	Crop	Acres Planted	Plant Date	Harvest Date	Estimated Yield (tons)	Tons Harvested	Actual Yield
Field: BR11								
	1	Wheat	23	12/27/2022	05/31/2023	18.0	423.2	18.4
	2	Corn	23	07/14/2023	10/13/2023	28.0	676.2	29.4
Field: BR12								
	1	Wheat	24	12/27/2022	05/31/2023	21.4	508.8	21.2
	2	Corn	24	07/14/2023	10/13/2023	30.6	744.0	31.0
Field: BR13								
	1	Wheat	19	12/27/2022	05/31/2023	18.5	361.0	19.0
	2	Corn	19	07/14/2023	10/13/2023	29.7	585.2	30.8
Field: BR14								
	1	Wheat	19	12/27/2022	05/31/2023	20.0	376.2	19.8
	2	Corn	19	07/14/2023	10/13/2023	28.7	566.2	29.8
Field: BR15								
	1	Wheat	46	12/27/2022	05/31/2023	19.7	897.0	19.5
	2	Corn	46	07/17/2023	10/16/2023	29.8	1412.2	30.7

INNOVATIVE AG SERVICES

Backroad Ranch 2023

Weather Data (Attachment G)

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

*Note: SWP = Standing Water Present

INNOVATIVE AG SERVICES

ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

September 14, 2023

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

Lab No. : **VI 2345582**
Customer No. : **4018573**
Reference : **41212**

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
Well 3	08/22/2023	08/22/2023	VI 2345582-001	AGW

Sampling and Receipt Information:

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

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

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

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

KD: EHB

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2023-09-14

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September 14, 2023

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

Description : Well 3
Project : 0178 Backroad Dairy

Lab No. : VI 2345582-001
Customer No. : 4018573
Reference : 41212
Sampled On : August 22, 2023 at 13:50
Sampled By : Alex
Received On : August 22, 2023 at 16:25
Matrix : Ag Water

Sample Results - Inorganic

Constituent	Result	RL	Units	Note	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	Ul	09/06/2023	10:10	sta	EPA 351.2	09/11/2023	19:31	lcr
Nitrate Nitrogen	0.6	0.4	mg/L		1		08/23/2023	13:00	lfs	SM 4500-NO3 F	08/23/2023	14:59	lfs
Nitrogen, Total as Nitrogen	0.6	0.5	mg/L		1	l	09/06/2023	10:10	sta	Calc.	09/11/2023	19:31	lcr
Nitrate + Nitrite as N	0.6	0.4	mg/L		1		08/23/2023	13:00	lfs	SM 4500-NO3 F	08/23/2023	14:59	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	Ul	09/06/2023	10:10	sta	EPA 351.2	09/11/2023	19:31	lcr
Conductivity	247	1	umhos/cm		1		09/08/2023	11:31	krh	SM 4500-H+B	09/08/2023	15:42	krh
Solids, Total Dissolved (TDS)	150	20	mg/L		1		08/25/2023	10:30	ctl	SM 2540 C	08/28/2023	10:45	ctl

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

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

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CA ELAP Certification No. 2810

September 14, 2023
Innovative Ag Services, LLC

Lab No. : VI 2345582
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
E. C.	2320B	(VI 2345799-001)	Dup	umhos/cm		0.3%	5	
Solids, Total Dissolved	2540CE	08/25/2023:209549CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	98.1 %	90-110	
		(STK2351135-012)	Dup	mg/L		0.9%	5	
		(STK2351135-012)	Dup	mg/L		2.1%	5	
Nitrogen, Total Kjeldahl	351.2	09/06/2023:209952STA	Blank	mg/L		ND	<0.5	
			LCS	mg/L	12.00	92.8%	73-124	
			MS	mg/L	12.00	90.5%	90-110	
		(VI 2345582-001)	MSD	mg/L	12.00	88.5%	90-110	435
			MSRPD	mg/L		2.2%	≤20	
			MS	mg/L	12.00	84.9%	90-110	435
		(VI 2345630-001)	MSD	mg/L	12.00	88.2%	90-110	435
			MSRPD	mg/L		3.6%	≤20	
Nitrate + Nitrite as N	4500NO3F	08/23/2023:209477LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	98.1%	80-120	
			MS	mg/L	5.609	96.3%	66-125	
		(SP 2314420-001)	MSD	mg/L	5.609	98.3%	66-125	
			MSRPD	mg/L		1.8%	≤30.4	
Nitrate Nitrogen	4500NO3F	08/23/2023:209477LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	98.1%	80-120	
			MS	mg/L	5.609	96.3%	66-125	
		(SP 2314420-001)	MSD	mg/L	5.609	98.3%	66-125	
			MSRPD	mg/L		1.8%	≤30.4	

Definition

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

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

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

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

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

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

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

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

Explanation

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

Page 3 of 3

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Laboratory Analysis Work Order

Nº 41212

2345582

ID: # 0178

LABORATORY: FGL

SITE NAME: Backroad Dairy

Billing: IAS

Authorized Copy Release to:

Innnovative Ag Services LLC

(559) 587-2800

ANALYSIS TO BE COMPLETED:

Irrigation/Ground Water (ELAP Standards)

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

Process Waste Water (lagoon)

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

Manure

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

Plant Tissue

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

Soil

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

	Sample ID	Description	Analysis	Date/Time	Sampled by	IAS USE ONLY: FIELD TESTS NH_3N*	pH	Temp
1	Well 3	Irr	W2	8/22 1:50	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 sampes, please note below.

NOTES:

CHAIN OF CUSTODY RECORDING

	Signature	Company	Received Date & Time	Relinquished Date & Time
1st	[signature]	IAS		8/22/23 3:10
2nd	[signature]	FGL	8-22-23 16:15	
3rd	[signature]	FGL		8-22-23 16:25
4th	[signature]		8/22/23 1625	

LABORATORY USE ONLY

Logged In By: [signature] Total Samples: [signature] Laboratory #: [signature] 8/23/23 1:30

THE PRINTER INC. - 559-992-5127

ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

October 6, 2023

Lab No. : **VI 2346403**
Customer No. : **4018573**
Reference : **41365**

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	(2 pages)	: Results for each sample submitted.
Quality Control	(1 page)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab No.	Matrix
Kings Well #2	09/20/2023	09/20/2023	VI 2346403-001	AGW
Kings Well #3	09/20/2023	09/20/2023	VI 2346403-002	AGW

Sampling and Receipt Information:

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

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

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

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

KD: EHB

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2023-10-06

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October 6, 2023

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

Description : Kings Well #2
Project : 0178 Backroad Dairy

Lab No. : VI 2346403-001
Customer No. : 4018573
Reference : 41365
Sampled On : September 20, 2023 at 11:00
Sampled By : Zeke
Received On : September 20, 2023 at 15:54
Matrix : Ag Water

Sample Results - Inorganic

Constituent	Result	RL	Units	Note	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	U	10/01/2023	12:07	sta	EPA 351.2	10/05/2023	16:28	lcr
Nitrate Nitrogen	15.0	0.4	mg/L		1		09/21/2023	12:50	lfs	SM 4500-NO3 F	09/21/2023	15:11	lfs
Nitrogen, Total as Nitrogen	15.0	0.5	mg/L		1		10/01/2023	12:07	sta	Calc.	10/05/2023	16:28	lcr
Nitrate + Nitrite as N	15.0	0.4	mg/L		1		09/21/2023	12:50	lfs	SM 4500-NO3 F	09/21/2023	15:11	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	U	10/01/2023	12:07	sta	EPA 351.2	10/05/2023	16:28	lcr
Conductivity	503	1	umhos/cm		1		10/04/2023	13:57	krh	SM 4500-H+B	10/04/2023	17:48	krh
Solids, Total Dissolved (TDS)	360	20	mg/L		1	I	09/22/2023	13:50	ctl	SM 2540 C	09/25/2023	11:00	ctl

DQF Flags Definition:
U Constituent results were non-detect.
I The RPD for the laboratory duplicate exceeded laboratory criteria.

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

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October 6, 2023

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

Description : Kings Well #3
Project : 0178 Backroad Dairy

Lab No. : VI 2346403-002
Customer No. : 4018573
Reference : 41365
Sampled On : September 20, 2023 at 11:15
Sampled By : Zeke
Received On : September 20, 2023 at 15:54
Matrix : Ag Water

Sample Results - Inorganic

Constituent	Result	RL	Units	Note	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	U	10/01/2023	12:07	sta	EPA 351.2	10/05/2023	16:30	lcr
Nitrate Nitrogen	25.7	0.4	mg/L		1		09/21/2023	12:50	lfs	SM 4500-NO3 F	09/21/2023	15:14	lfs
Nitrogen, Total as Nitrogen	25.7	0.5	mg/L		1		10/01/2023	12:07	sta	Calc.	10/05/2023	16:30	lcr
Nitrate + Nitrite as N	25.7	0.4	mg/L		1		09/21/2023	12:50	lfs	SM 4500-NO3 F	09/21/2023	15:14	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	U	10/01/2023	12:07	sta	EPA 351.2	10/05/2023	16:30	lcr
Conductivity	672	1	umhos/cm		1		10/04/2023	13:57	krh	SM 4500-H+B	10/04/2023	17:16	krh
Solids, Total Dissolved (TDS)	480	20	mg/L		1		09/22/2023	11:20	ctl	SM 2540 C	09/25/2023	11:00	ctl

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

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

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October 6, 2023
Innovative Ag Services, LLC

Lab No. : VI 2346403
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
E. C.	2320B	(VI 2346385-001)	Dup	umhos/cm		0.8%	5	
Solids, Total Dissolved	2540CE	09/22/2023:210659CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	98.2%	90-110	
		(SP 2315968-001)	Dup	mg/L		0.9%	5	
		(SP 2315968-001)	Dup	mg/L		1.37%	5	
			Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	100%	90-110	
		(SP 2316124-001)	Dup	mg/L		5.49%	5	440
		(SP 2316124-001)	Dup	mg/L		3.38%	5	
Nitrogen, Total Kjeldahl	351.2	10/01/2023:211027STA	Blank	mg/L		ND	<0.5	
			LCS	mg/L	12.00	95.5 %	73-124	
			MS	mg/L	12.00	92.6 %	90-110	
		(VI 2346376-001)	MSD	mg/L	12.00	94.4 %	90-110	
			MSRPD	mg/L	12.00	1.9%	≤20	
			MS	mg/L	12.00	91.0 %	90-110	
		(VI 2346376-008)	MSD	mg/L	12.00	90.6 %	90-110	
			MSRPD	mg/L	12.00	0.4%	≤20	
Nitrate + Nitrite as N	4500NO3F	09/21/2023:210624LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	102%	80-120	
			MS	mg/L	5.609	93.8%	66-125	
		(STK2353018-001)	MSD	mg/L	5.609	95.3%	66-125	
			MSRPD	mg/L		1.5%	≤30.4	
Nitrate Nitrogen	4500NO3F	09/21/2023:210624LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	102%	80-120	
			MS	mg/L	5.609	93.8%	66-125	
		(STK2353018-001)	MSD	mg/L	5.609	95.3%	66-125	
			MSRPD	mg/L		1.5%	≤30.4	

Definition

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

Explanation

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

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Laboratory Analysis Work Order

Nº 41365

ID: # 0178 2846403

LABORATORY: FGL

SITE NAME: BACKROAD DAIRY

Billing: IAS

Authorized Copy Release to:

Innnovative Ag Services LLC

(559) 587-2800

ANALYSIS TO BE COMPLETED:

Irrigation/Ground Water (ELAP Standards)

W1 EC, NO_3N (Dom)

W2 EC, NO_3N, TDS, TN (Irr)

W3 NH_4-N (Ammonium)

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

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

W6 NO_3N, NO_2 (Dom ILRP, Annually)

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

W8 Other: _____

Rcl 5.3°C Bx# 7A2407

Process Waste Water (lagoon)

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

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

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

L4 Other: _____

Manure

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

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

M3 Other: _____

Plant Tissue

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

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

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

P4 TN, %M

P5 % Moisture

P6 NIR

P7 Other: _____

Soil

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

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

S3 NO_3N, NH_4N

S4 Other: _____

	Sample ID	Description	Analysis	Date/Time	Sampled by	IAS USE ONLY: FIELD TESTS NH_3N *	pH	Temp
1	KINGS WELL #2	IRR	W2	9-20 / 11:00	Zeke			
2	KINGS WELL #3	IRR	W2	9-20 / 11:10	Zeke			
3								
4								
5								
6								
7								
8								

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

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

NOTES:

CHAIN OF CUSTODY RECORDING

	Signature	Company	Received Date & Time	Relinquished Date & Time
1st		IAS		9-20-23 / 3:30
2nd	AJB	FGL	9/20/23 1540	
3rd	AJB	FGL		9/20/23 1554
4th			9/20/23 1554	

LABORATORY USE ONLY

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

9/21/23

ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

November 6, 2023

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

Lab No. : **VI 2347122**
Customer No. : **4018573**
Reference : **41633**

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
Tulare Well #2	10/19/2023	10/19/2023	VI 2347122-001	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: 2023-11-07

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November 6, 2023

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

Description : Tulare Well #2
Project : 0178 Backroad Ranch

Lab No. : VI 2347122-001
Customer No. : 4018573
Reference : 41633
Sampled On : October 19, 2023 at 11:45
Sampled By : Zeke
Received On : October 19, 2023 at 16:53
Matrix : Ag Water

Sample Results - Inorganic

Constituent	Result	RL	Units	Note	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Nitrogen, Total Kjeldahl	ND	0.5	mg/L		1	Ul	11/01/2023	13:01	sta	EPA 351.2	11/03/2023	17:36	lcr
Nitrate Nitrogen	6.8	0.4	mg/L		1		10/20/2023	12:00	lfs	SM 4500-NO3 F	10/20/2023	13:25	lfs
Nitrogen, Total as Nitrogen	6.8	0.5	mg/L		1	l	11/01/2023	13:01	sta	Calc.	11/03/2023	17:36	lcr
Nitrate + Nitrite as N	6.8	0.4	mg/L		1		10/20/2023	12:00	lfs	SM 4500-NO3 F	10/20/2023	13:25	lfs
Kjeldahl Nitrogen	ND	0.5	mg/L		1	Ul	11/01/2023	13:01	sta	EPA 351.2	11/03/2023	17:36	lcr
Conductivity	238	1	umhos/cm		1		11/03/2023	07:56	krh	SM 4500-H+B	11/03/2023	10:55	krh
Solids, Total Dissolved (TDS)	170	20	mg/L		1		10/23/2023	10:20	ctl	SM 2540 C	10/24/2023	11:15	ctl

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

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

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November 6, 2023
Innovative Ag Services, LLC

Lab No. : VI 2347122
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
E. C.	2320B	(VI 2347281-001)	Dup	umhos/cm		0.1%	5	
Solids, Total Dissolved	2540CE	10/23/2023:211936CTL	Blank	mg/L		ND	<20	
			LCS	mg/L	991.5	100%	90-110	
		(CC 2383715-001)	Dup	mg/L		2.84%	5	
		(CC 2383715-001)	Dup	mg/L		3.59%	5	
Nitrogen, Total Kjeldahl	351.2	11/01/2023:212413STA	Blank	mg/L		ND	<0.5	
			LCS	mg/L	12.00	92.7%	73-124	
			MS	mg/L	12.00	89.4%	90-110	435
		(VI 2347084-006)	MSD	mg/L	12.00	90.9%	90-110	
			MSRPD	mg/L		1.6%	≤20	
			MS	mg/L	12.00	81.1%	90-110	435
		(VI 2347084-007)	MSD	mg/L	12.00	79.4%	90-110	435
			MSRPD	mg/L		2.0%	≤20	
Nitrate + Nitrite as N	4500NO3F	10/20/2023:211903LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	99.1%	80-120	
			MS	mg/L	5.609	90.6%	66-125	
		(SP 2317766-001)	MSD	mg/L	5.609	91.1%	66-125	
			MSRPD	mg/L		0.2%	≤30.4	
Nitrate Nitrogen	4500NO3F	10/20/2023:211903LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	99.1%	80-120	
			MS	mg/L	5.609	90.6%	66-125	
		(SP 2317766-001)	MSD	mg/L	5.609	91.1%	66-125	
			MSRPD	mg/L		0.2%	≤30.4	

Definition

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

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

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

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

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

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

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

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

Explanation

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

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CA ELAP Certification No. 2810

Laboratory Analysis Work Order

Nº 41633

2347122

ID: # 0178

LABORATORY: FGL

SITE NAME: BACKROAD RANCH

Billing: IAS

Authorized Copy Release to:

Innnovative Ag Services LLC

(559) 587-2800

ANALYSIS TO BE COMPLETED:

Irrigation/Ground Water (ELAP Standards)

W1 EC, NO_3N (Dom)

W2 EC, NO_3N, TDS, TN (Irr)

W3 NH_4-N (Ammonium)

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

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

W6 NO_3N, NO_2 (Dom ILRP, Annually)

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

W8 Other: _____

Process Waste Water (lagoon)

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

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

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

L4 Other: _____

Manure

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

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

M3 Other: _____

Plant Tissue

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

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

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

P4 TN, %M

P5 % Moisture

P6 NIR

P7 Other: _____

Soil

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

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

S3 NO_3N, NH_4N

S4 Other: _____

	Sample ID	Description	Analysis	Date/Time	Sampled by	IAS USE ONLY: FIELD TESTS NH_3N *	pH	Temp
1	Tulare Well #2	Irr	W2	10-19 / 11:45	Zeke			
2								
3								
4								
5								
6								
7								
8								

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

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

NOTES:

CHAIN OF CUSTODY RECORDING

	Signature	Company	Received Date & Time	Relinquished Date & Time
1st		IAS		10-19-23 / 1:50
2nd	AJB	FGL	10/19/23 1653	
3rd	AJB	FGL		10/19/23 1707
4th	AJB		10/19/23 1707	

LABORATORY USE ONLY

Logged In By: GL

Total Samples: 10/19/23 1700

Laboratory #: _____

GLS mc 10/20/23 1100

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ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

December 22, 2023

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

Lab No. : **VI 2348565**
Customer No. : **4018573**
Reference : **42185**

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
North PS East	12/14/2023	12/14/2023	VI 2348565-001	DW

Sampling and Receipt Information:

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

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

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

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

KD: EHB

Approved By **Kelly A. Dunnahoo, B.S.** Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2023-12-26

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Stockton, CA 95215
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FAX: (209)942-0423
CA ELAP Certification No. 1563

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

December 22, 2023

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

Description : North PS East
Project : 0178 Backroad Ranch

Lab No. : VI 2348565-001
Customer No. : 4018573
Reference : 42185
Sampled On : December 14, 2023 at 10:50
Sampled By : Zeke
Received On : December 14, 2023 at 15:50
Matrix : Drinking Water

Sample Results - Inorganic

Constituent	Result	RL	Units	MCL/AL	Dil.	DQF	Sample Preparation			Sample Analysis			
Dairy Analysis							Date	Time	Who	Method	Date	Time	Who
Nitrate Nitrogen	18.2	0.4	mg/L	10	1		12/15/2023	13:00	lfs	SM 4500-NO3 F	12/15/2023	16:46	lfs
Conductivity	667	1	umhos/cm	1600[2]	1		12/21/2023	09:19	krh	SM 4500-H+B	12/21/2023	11:58	krh

DQF Flags Definition:

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

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December 22, 2023
Innovative Ag Services, LLC

Lab No. : VI 2348565
Customer No. : 4018573

Quality Control - Wet Chem

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Wet Chem								
E. C.	2320B	(VI 2348655-001)	Dup	umhos/cm		0.07%	5	
Nitrate Nitrogen	4500NO3F	12/15/2023:214153LFS	Blank	mg/L		ND	<0.4	
			LCS	mg/L	11.22	93.3%	80-120	
			MS	mg/L	5.609	93.1%	66-125	
		(VI 2348536-001)	MSD	mg/L	5.609	94.3%	66-125	
			MSRPD	mg/L		1.0%	≤30.4	

Definition

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

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

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

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

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

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

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

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

Page 3 of 3

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Laboratory Analysis Work Order

Nº 42185

ID: # 0178 23485665

LABORATORY: FGL

SITE NAME: Backrock Ranch

Billing: IAS

Authorized Copy Release to:

Innnovative Ag Services LLC

(559) 587-2800

ANALYSIS TO BE COMPLETED:

Irrigation/Ground Water (ELAP Standards)

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

Rol 8.1c IC# TH407

Process Waste Water (lagoon)

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

Manure

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

Plant Tissue

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

Soil

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

	Sample ID	Description	Analysis	Date/Time	Sampled by	IAS USE ONLY: FIELD TESTS NH_3N*	pH	Temp
1	North PS East	Dom	W1	12-14 / 10:50	Zeke			
2								
3								
4								
5								
6								
7								
8								

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

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

NOTES:

CHAIN OF CUSTODY RECORDING

	Signature	Company	Received Date & Time	Relinquished Date & Time
1st		IAS		12-14-23 / 7:20
2nd		FGL	12-14-23 15:58	
3rd		FGL		12-14-23 16:08
4th			12/14/23 1600	

LABORATORY USE ONLY

Logged In By: _____ Total Samples: 12/14/23 1720 Laboratory #: 10/15/23 1155

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